CHAIRMAN OF THE JOINT CHIEFS OF STAFF INSTRUCTION

J-8 CJCSI 3170.01B
DISTRIBUTION: A, B, C, J, S 15 April 2001

REQUIREMENTS GENERATION SYSTEM

References: See Enclosure F

1. Purpose

a. Establish policies and procedures for the requirements generation system called for by reference a.

b. Provide policies and procedures for developing, reviewing, validating, and approving Mission Need Statements (MNSs) and Operational Requirements Documents (ORDs) required by reference b.

c. Provide policies and procedures for developing, reviewing, validating, and approving Capstone Requirements Documents (CRDs).

d. Delegate oversight authority for the requirements generation system to the Vice Chairman of the Joint Chiefs of Staff, assisted by the Joint Requirements Oversight Council (JROC) and members of the Joint Staff.

e. Provide guidelines for the conduct of requirements and program reviews at each milestone for Major Defense Acquisition Programs (MDAPs) prior to their being forwarded for Defense Acquisition Board (DAB) review and Major Automated Information System (MAIS) acquisition programs prior to their being forwarded to Assistant Secretary of Defense (Command, Control, Communications and Intelligence) ASD(C3I) or appropriate component acquisition executive and JROC special interest programs.

f. Define the role of the JROC Secretary as the Joint Staff point of contact for the submission, handling, and review of MNSs, CRDs, and ORDs.

2. Cancellation. CJCSI 3170.01A, dated 10 August 1999, is canceled.

3. Applicability. This instruction applies to the requirements generation system of the Joint Staff, Services, unified commands, and those DOD field activities and Defense agencies supporting the defense acquisition responsibilities of the Chairman of the Joint Chiefs of Staff. This instruction also applies, in general, to other agencies preparing and submitting requirements in accordance with references a and b. Highly sensitive classified programs will comply with this instruction, but will be tailored as necessary to account for special security considerations. This instruction does not preclude the need to refer to the basic DOD 5000 series documents for guidance and direction on defense acquisition. All DOD components responsible for generating requirements documents will base their respective procedures for Acquisition Category (ACAT) II and below programs on those contained in this instruction. Application of these common formats to all requirements documentation will provide better visibility, recognition, and accommodation of joint requirements opportunities and interoperability issues earlier in the requirements generation process. Programs planned in accordance with the 1999 version of DOD Directive 5000.1 will be executed in accordance with approved program documentation, which will not be updated solely to satisfy the requirements of this instruction. Programs already approved to enter engineering and manufacturing development (EMD) will continue to follow the sequence of milestones established in their program documentation. The new policies, described in the 23 October 2000 DOD 5000 series, including the new decision points and phases, will be applied to all new acquisition programs and may be applied to existing programs that have not yet entered EMD at the discretion of the milestone decision authority.

4. Policy

a. Authority. The Chairman of the Joint Chiefs of Staff assesses military requirements for defense acquisition programs and represents the CINCs with respect to their operational requirements (reference d, sections 153 and 163, respectively). The JROC facilitates the execution of these responsibilities (reference d, section 181, and reference h for mission and organization, roles, and responsibilities).

b. Service Role. The Services are responsible for organizing, supplying, equipping (including research and development), training,

administering, and related functions in order to meet the current and future operational requirements of the unified commands. They are also charged with eliminating duplication through effective cooperation and coordination with the other Services and DOD agencies (reference d, sections 3013, 5013, and 8013).

c. CJCS Role. The Chairman of the Joint Chiefs of Staff, assisted by the Vice Chairman and other members of the Joint Chiefs of Staff, establishes and publishes policies and procedures governing the requirements generation system.

d. VCJCS Role. The Vice Chairman of the Joint Chiefs of Staff, assisted by the JROC, will oversee the requirements generation system in accordance with DOD 5000 series documents and policies and procedures contained in this instruction to ensure the responsibilities of the Chairman under title 10, USC, are fulfilled.

e. DOD Chief Information Officer (CIO) Role. The DOD CIO is responsible to ensure the interoperability of information technology and national security systems throughout the Department of Defense. DOD CIO will ensure that information technology and national security systems standards that will apply throughout the Department are prescribed and provide for elimination of duplicate information technology within and between the Military Departments and Defense agencies (reference s).

f. Implementation and Supplementation. This instruction will not be supplemented without the prior approval of the Vice Chairman of the Joint Chiefs of Staff or his delegated representative.

5. Definitions. Definitions are provided in the Glossary.

6. Responsibilities. See Enclosure B.

7. Summary of Changes. This revision reflects a significant update of the document, primarily to incorporate changes to the DOD 5000 series. Changes include an update to conform with the new DOD acquisition model, increased emphasis on time-phased requirements in support of evolutionary acquisition, and clarification of the requirement to address environmental issues in requirements documents.

8. Releasability. This instruction is approved for public release; distribution is unlimited. DOD components (to include the combatant commands), other federal agencies, and the public may obtain copies of this instruction through the Internet from the CJCS Directives Home

Page -- http://www.dtic.mil/doctrine. Copies are also available through the Government Printing Office on the Joint Electronic Library CD-ROM.

9. Effective Date. This instruction is effective upon receipt.

For the Chairman of the Joint Chiefs of Staff:

S. A. FRY
Vice Admiral, U.S. Navy
Director, Joint Staff

Enclosures:

A -- Requirements Generation System
B -- Requirements Generation Process
C -- Mission Need Statement Generation Process
Appendix A -- Mission Need Statement Format
Appendix B -- Notional Joint Mission Need Analysis Working Groups
D -- Capstone Requirements Document Generation Process
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E -- Operational Requirements Document Generation Process
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GL-- Glossary

DISTRIBUTION

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	Copies
Secretary of Defense	20
Commander, US Element, NORAD	10

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B-1thru B-14	O	E-A-1 thru E-A-8	O
C-1 thru C-4	O	F-1 thru F-2	O
C-A-1 thru C-A-2	O	GL-1 thru GL-14	O
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RECORD OF CHANGES

Change No.	Date of Change	Date Entered	Name of Person Entering Change

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ENCLOSURE A

REQUIREMENTS GENERATION SYSTEM

1. Requirements Generation System. The Requirements Generation System, along with the Acquisition Management System and the Planning, Programming, and Budgeting System, form the Department of Defense's three principal decision support systems (see Figure 1). A close and effective interface among these systems is required to ensure quality products are acquired for the Nation's Armed Forces. The

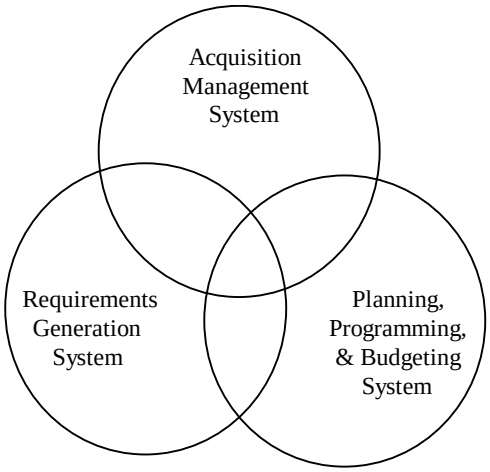

Figure 1. Three DOD Decision Support Systems

requirements generation system produces information for decision makers on the projected mission needs of the warfighter. These mission needs are defined in broad operational terms in an MNS document. MNSs are prepared for needs that develop into warfighter's operational requirements that could result in new defense acquisition programs. Validation of the MNS confirms the fact that a nonmateriel solution alone cannot satisfy the identified need, and that a potential "new concept/system" materiel solution should be considered. Subsequently, the needs expressed in the MNS are developed into requirements by the Requirements Generation Process in the forms of CRDs (if required) and ORDs. CRDs provide ORD development guidance through validated, performance-based overarching capabilities for a mission area that forms a system of systems or family of systems. ORDs translate the MNS and (if applicable) CRD requirements into detailed, refined performance capabilities and characteristics of the proposed system. ORDs provide the specific requirements base for the Acquisition Management System and the Planning, Programming, and Budgeting System (PPBS) for Advanced Defense Acquisition Program development, programming, and

budgeting. Figure 2 highlights the interface of the requirements and acquisition systems.

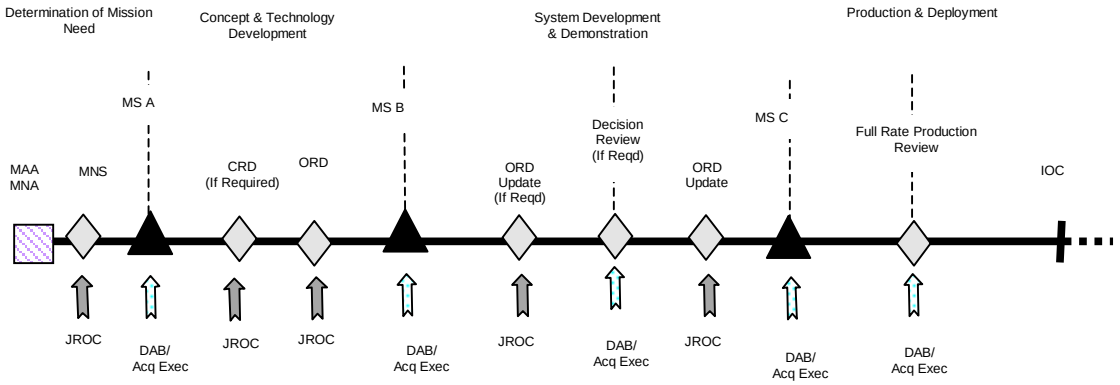

Figure 2. Current Requirements and Acquisition Interface

This system is reflected in the current DOD 5000 series. Programs planned in accordance with the 1999 version of the DOD 5000 series will be executed per their approved program documentation. The acquisition model dictated by the 1999 DOD 5000 series is depicted in Figure 3.

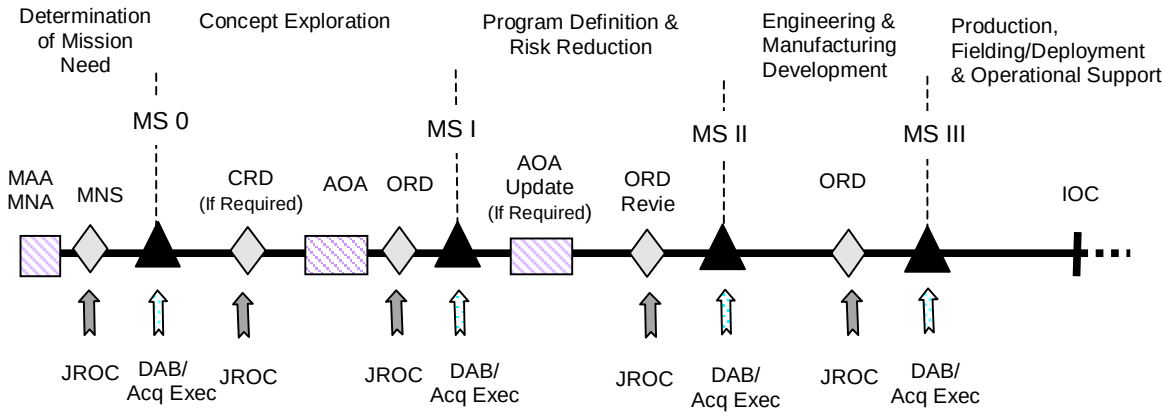

Figure 3. Requirements and Acquisition Interface Under the 1999 Model

2. Future Requirements Generation System. Two areas that will have significant impact on the future of the requirements generation system are joint requirements and DOD initiatives toward evolutionary acquisition that intends to provide quality products to the warfighter in a timely manner.

a. Joint Requirements. Joint requirements are requirements that impact more than one DOD component. All C4I and intelligence, surveillance, and reconnaissance (ISR) systems for purposes of compatibility and interoperability and integration are considered joint. Programs having a joint potential designator (JPD) of joint or programs

designated as "joint" will become more numerous over time and need to be developed with participation of all DOD components. Joint requirement responsibilities and procedures are addressed in the enclosures of this instruction.

b. Time-Phased Requirements in Support of Evolutionary Acquisition. As the Department of Defense moves to reduce cycle time of traditional acquisition activities, through evolutionary acquisition, there needs to be an effective mechanism for specifying operational requirements to support this process. Time-phased requirements generation is an evolutionary approach to specifying operational requirements in an incremental manner over time matched with projected threat assessments and available technology. Time-phased requirements are essential to evolutionary acquisition and are strongly encouraged as a preferred approach to establishing and documenting operational needs. Specific guidance is provided in Enclosure E.

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ENCLOSURE B

REQUIREMENTS GENERATION PROCESS

1. Requirements Generation Process. The requirements generation process will be uniform throughout the Department of Defense. Specifically, the generation of requirements will consist of the following four distinct phases: 1) definition, 2) documentation, 3) validation, and 4) approval. As a system evolves from an MNS to a CRD (if applicable) through ORDs, there are differences in what is accomplished in each phase. A general description of each phase is provided below while specific MNS, CRD, and ORD procedures for each phase are described in the appropriate enclosures of this instruction. DODI 5000.2, Operation of the Defense Acquisition System, 23 October 2000, section 4.7.2, contains guidance that will be adhered to when developing and refining requirements documents.

a. Definition Phase. The definition phase defines, analyzes, evaluates, and justifies the development of a requirements document. For MNSs, the evaluation is best accomplished by a Mission Area Analysis (MAA) and Mission Need Analysis (MNA) or equivalent DOD component process. CRDs can use concept development studies, analysis expanded from the MAA/MNA for the mission area, inputs from exercises, operational experience, and experimentation. ORDs can use Analysis of Alternatives (AOA), demonstrations of military utility, and experimentation inputs.

b. Documentation Phase. The formal preparation and initial DOD component review of required and standardized documents in support of a defined mission need is the documentation phase. The MNS is a non-system-specific statement of operational capability need written in broad operational terms. The CRD captures the overarching requirements for a mission area that forms a family of systems (FOS) (e.g., space control, theater missile defense) or system-of-systems (SOS) (e.g., national missile defense). The ORD translates the MNS into more detailed and refined performance capabilities and characteristics of a proposed concept or system. Requirements evolution is depicted in Figure 4.

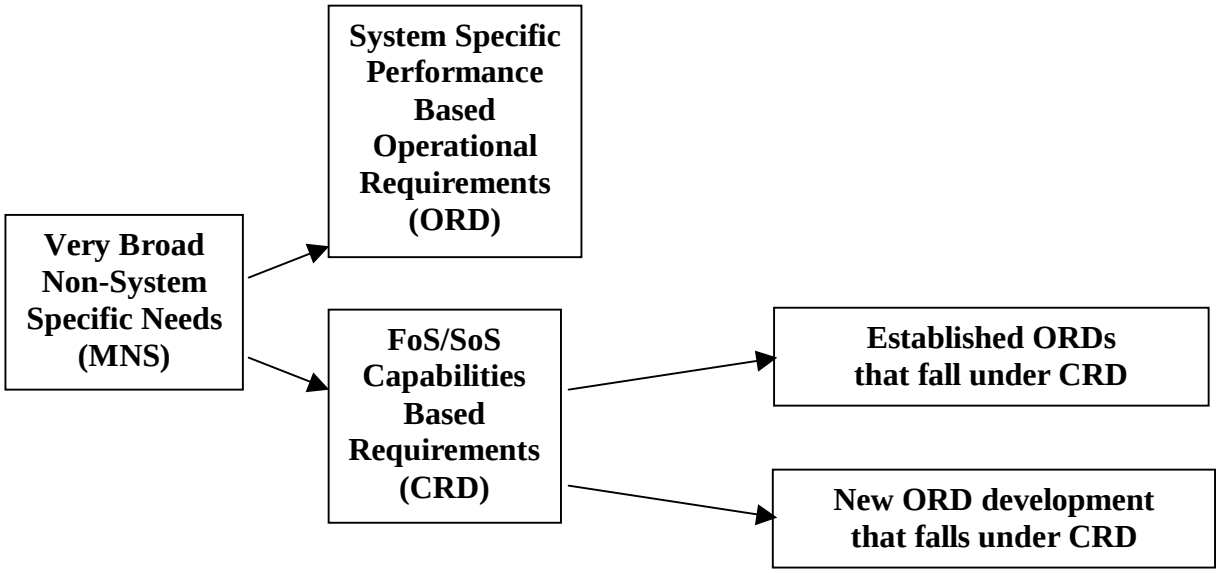

Figure 4. Requirements Documentation Evolution

c. Validation Phase. The validation phase is the formal review process of a requirements document, by an operational authority other than the user, to confirm the identified need and operational requirement. This review should include a careful analysis of the joint doctrine, organization, training, leadership, personnel, and facilities (DOTLPF) impacts and attendant requirements. The validation authority for MNSs, CRDs, and ORDs is dependent upon potential ACAT level and/or if a program is designated JROC special interest.

d. Approval Phase. The approval phase documents the approval authority's concurrence in the final validated document. Approval is a formal sanction that the validation process is complete and the identified need or operational capabilities described in the documentation are valid. Approval authority is dependent upon potential ACAT level, if designated JROC special interest, or if approval authority has been delegated.

2. Responsibilities

a. JROC. Title 10, section 181, the DOD 5000 series, and reference h specifically delineate the JROC's responsibilities. The JROC will assist the Chairman in identifying and assessing the priority of joint military requirements and acquisition programs to meet the National Military Strategy. The JROC reviews potential ACAT I/information assurance (IA) and JROC special interest programs to support the DAB/DOD CIO review process, respectively. The JROC also assists the Chairman in

considering alternatives to any acquisition program that has been identified to meet military requirements by evaluating performance, cost, and schedule. The JROC, at its discretion, may review any requirements document and ACAT II and below acquisition programs to resolve contentious or joint interest issues. The JROC will also review programs at the request of the Secretary of Defense, Deputy Secretary of Defense, Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), or Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C3I)). The JROC Secretariat will notify the appropriate DOD component via a JROC Staffing Memorandum (JROCSM) identifying the document or program as JROC special interest.

b. Joint Staff and Defense Intelligence Agency (DIA). The Joint Staff and DIA provide an important review, coordination, and certification function in support of the MNS, CRD, and ORD validation and approval process. These functions include interoperability requirements certification, intelligence certification, threat validation, aviation munitions interoperability and munitions insensitivity certification, and the staffing of all documents that the JROC reviews.

(1) Director, J-2, Joint Staff, and Director, DIA

(a) Threat Validation. DIA will provide threat validation appropriate to the projected lifespan of the system on intelligence information used in potential ACAT I and JROC special interest MNSs, CRDs, and ORDs. DOD components may validate intelligence information for their own ACAT II and below programs using DIA-validated threat data and/or data contained in DOD Intelligence Production Program documents.

(b) Intelligence Certification. DIA will certify all MNSs, CRDs, ORDs, regardless of ACAT level, for intelligence supportability and impact on joint intelligence strategy, policy, and architecture planning. The DIA certification will also evaluate open systems architecture, interoperability, and compatibility standards for intelligence handling and intelligence-related information systems. DIA will forward intelligence certification to the JROC for ACAT I and JROC special-interest programs or to the sponsoring DOD component or agency for ACAT II and below. Unresolved intelligence issues will be forwarded by DIA to the Military Intelligence Board (MIB) for resolution. The Director, DIA, will ensure that unresolved issues resulting from intelligence assessments are presented to the JROC for resolution at each milestone review.

(c) C4I Support Plans (C4ISP). J-2 and DIA will review and assess ISR requirements and supportability in the C4ISP as described in reference b. DIA/J2 will forward certification of intelligence requirements supportability to ASD(C3I). A sample C4ISP is contained in reference q.

(2) Director, J-3, Joint Staff. J-3 is the Office of Primary Responsibility for the Global Command and Control System (GCCS) and common operational picture (COP). IAW CJCSI 6721.01 (reference k). J-3 will review all GCCS functional requirements identified in ORDs.

(3) Director, J-4, Joint Staff

(a) Aviation Munitions. J-4 will certify all potential ACAT I MNSs and ORDs for aviation munitions for cross-Service interoperability.

(b) Insensitive Munitions. J-4 will certify that all ORDs for munitions, regardless of ACAT level, contain the requirement to conform with insensitive munitions (unplanned stimuli) criteria. As a minimum, these ORDs will contain the statement "Munitions used in this system will be designed to resist insensitive munitions threats (unplanned stimuli)."

(c) Insensitive Munitions Waiver Requests. Insensitive munitions and cross-Service interoperability waiver requests require approval by the JROC. Waiver requests will be submitted to J-4 for review and then forwarded to the JROC secretariat for JROC consideration.

(4) Director, J-6, Joint Staff

(a) Interoperability Requirements Certification. J-6 will certify MNSs, CRDs, and ORDs, regardless of ACAT level, for conformance with joint C4 policy and doctrine, technical architectural integrity, and interoperability standards. J-6 will review and comment on Interoperability key performance parameters (KPPs) and coordinate C4 issues concerning MNSs, CRDs, and ORDs with the appropriate agencies IAW reference i as directed by references m and n. The J-6 will forward C4 interoperability requirements certification to the JROC for ACAT I/IA and JROC special-interest programs or to the sponsoring DOD component for ACAT II and below programs. Unresolved interoperability issues will be forwarded by J-6 to the Military Communications-Electronics Board (MCEB) for resolution. The MCEB will ensure that unresolved issues resulting from interoperability assessments are presented to the JROC for resolution.

(b) C4I Support Plans. J-6 will review and assess the C4 requirements in the C4ISP (IAW reference i), as described in reference b.

(5) Director, J-7, Joint Staff. As the Executive Agent for Joint Vision Implementation, J-7 will utilize the Joint Vision Implementation Master Plan (reference e) to review recommendations resulting from joint experimentation that will affect joint doctrine, organizations, training and education, materiel, leadership, and personnel (DOTMLP). Recommendations indicating potential materiel solutions will be forwarded to the JROC for review.

(6) Director, J-8, Joint Staff. Director, J-8, is the appointed JROC Secretary whose staff makes up the JROC Secretariat. Specific J-8 responsibilities are outlined in reference h.

c. Services. Services will define mission needs and operational requirements and will develop and coordinate the documentation with the appropriate DOD components. The Service functions as validation and approval authority for Service-generated MNSs and ORDs ACAT II and below unless designated JROC special interest. An MNS validated by a CINC and forwarded for action to a Service does not need to be revalidated by the Service.

d. CINCs and Component Commands

(1) Requirements Review. The CINCs and Commander, US Element, NORAD, will review and comment on all ACAT I/IA and JROC special interest documents that are validated and approved by the JROC. CINCs also are provided the opportunity to review and comment on ACAT II and below documents during the J-2/J-6 certification process.

(2) CINC-Generated Mission Need Statements. The CINCs and Commander, US Element, NORAD, will forward all CINC-generated MNSs to the JROC for initial O-6 level review. USSOCOM will retain validation and approval authority for all USSOCOM MNSs that result in potential ACAT II and below programs in accordance with reference d, section 167. The preferred method for CINC MNS generation is for the CINCs to identify their mission needs to the responsible Service component commander or appropriate DOD agency (references n and o). The component or agency will then coordinate the definition and documentation activities through their sponsoring Services or agency requirements system and keep the CINCs apprised of the status of the MNS.

(a) JROC Approval. If the O-6 review recommends a JPD of "joint interest" or "joint," then the MNS will complete flag-level review and will be forwarded to the JROC for validation and approval as outlined in Enclosures B and C.

(b) CINC Approval. If the O-6 review recommends a JPD of "independent," then the MNSs will be returned to the sponsoring CINC for validation and approval. Upon approval, the CINC will forward the MNS to the appropriate Service or agency-designated office responsible for the requirements generation system, which will forward the MNS to the component acquisition executive.

(3) CINC Field Assessments (CFA). The purpose of a CFA is to provide a deployed/employed CINC a rapid, tailored analysis in response to an emergent threat capability and to meet urgent priority information needs about fielded US force or system capabilities and/or vulnerabilities involving more than one Service. The CFA process and submission criteria are described in reference g.

(4) Joint Staff Assistance. Joint Staff assistance may be needed to support a CINC in the development of a mission need or in determining if a CINC-generated MNS is redundant to a validated MNS or one under development. J-8, Requirements and Acquisition Division (RAD), will be the POC on the Joint Staff for the CINCs to contact for assistance. Joint Warfighting Capabilities Assessment teams (reference f) and Joint Staff functional area experts can be designated to assist during the definition and documentation phase of MNS development. The intent is not to have the Joint Staff write the requirements document, but to see that responsible DOD components are identified to provide assistance. If required, the JROC will assign a DOD component as lead for CINC-generated MNSs.

(5) Senior Warfighter Forum (SWARF). The JROC will address CINC issues and recommendations on the adequacy of requirements generation and investment strategies through the currently established JROC trips, and the requirements generation, acquisition, and PPBS processes. If a CINC identifies a joint requirements issue or resource mismatch, they can forward a request to the JROC to convene a SWARF. The SWARF is a JROC-directed forum used to organize, analyze, prioritize, and build joint consensus on a complex resource and requirements issue for JROC approval. The JROC tasking memorandum will identify the SWARF lead, specific issue to be addressed, fiscal guidelines, assignment of the appropriate acquisition and technical expertise to frame issue, and timeline to report recommendation(s). The JROC will assign CINCs to lead SWARFs according to their missions and

responsibilities. The SWARF lead will brief the recommendation(s) to the JROC.

(6) USSOCOM. Congress has given USCINCSOC specific title 10 authority within a unique major force appropriation category (reference d, section 167). Therefore, USCINCSOC can establish, validate, and approve USSOCOM requirements and budget for ACAT II and below programs.

(7) United States Joint Forces Command (USJFCOM)

(a) Joint Experimentation. USCINCJFCOM is designated the Executive Agent for conducting joint warfighting experimentation. USCINCJFCOM is responsible to the Chairman for creating and refining future Joint Warfighting Concepts and integration of Service efforts in support of Joint Vision 2010 (JV 2010) and future CJCS Joint Warfighting Visions. USCINCJFCOM will conduct joint experimentation to explore, demonstrate, and evaluate joint warfighting concepts. Experimentation will identify the breakthrough warfighting capabilities necessary to achieve JV 2010 and future visions. Recommendations from joint experimentation having potential materiel solutions will be forwarded by USCINCJFCOM to the JROC for review. These recommendations could be the basis to conduct a joint mission need analysis that could lead to the development of an MNS or CRD.

(b) Interoperability. USCINCJFCOM will serve as the Chairman's advocate for joint warfighting interoperability. USJFCOM will provide the warfighter perspective during the development of joint operational concepts to ensure that joint forces have interoperable systems. USJFCOM will support the Chairman in the following areas:

(1) Coordinate with the Joint Staff, J-6, and ASD(C3I), co-chairs of the Joint Operational Architecture Working Group, along with the Joint Staff, Services, and CINCs to continue development of the C4ISR Joint Operational Architecture (JOA). The objective of the C4ISR JOA is to enable joint force commanders and forces to achieve interoperable, integrated, joint military operations employing the operational concepts of JV 2010.

(2) Comment during the requirements staffing process on the adequacy of CRD and ACAT I/IA ORD Interoperability KPPs. The comments will provide the warfighter perspective on the adequacy of interoperability as addressed in the CRD or ORD. For ACAT I/IA and JROC special interest ORDS and CRDs, USJFCOM will have the opportunity to comment on unresolved interoperability issues at the

JROC. USJFCOM will be available to comment on interoperability issues that are forwarded to the DAB by the JROC.

(3) Comment on interoperability issues for ACAT II and below programs identified during the Joint Staff, J-6, interoperability requirements certification process.

e. Defense Agencies. Defense agencies may be tasked to manage acquisition programs. The agencies may develop their own MNSs as a DOD component or be asked to manage programs initiated by the CINCs or Services.

3. Procedures

a. Standardization of Document Formats. Requirements documents (MNSs, CRDs, and ORDs) will be uniform across all DOD organizations and apply to all acquisition categories. This standardization instills discipline in the process and provides both the validation and approval authorities and the acquisition management system with efficient and consistent information to use in reviews, certifications, and decision deliberations. However, for programs that do not go before the JROC, DOD Component ORD validation and approval authorities can amplify the format on a case-by-case basis to support their decision process (e.g., mapping, charting, and geodesy support is not required or inclusion of expanded information within a specific area of operation). Standardized classifications and markings on MNS, CRD, and ORD will be applied in accordance with DOD 5200.1-PH, April 97, "DOD Guide to Marking Classified Documents." The MNS, CRD and ORD formats are found in Appendix A to Enclosure C, Appendix A to Enclosure D, and Appendix A to Enclosure E, respectively.

b. Document Submission. All MNSs, CRDs, and ORDs that go to the JROC will be submitted to J-8 RAD through the DOD component JROC coordination organization. The document will be the DOD component O-6 level coordinated position. The document will be forwarded with a cover letter identifying the document, date, any schedule drivers, the classification of the document, and a working-level POC. Also, an executive summary of the analysis supporting the development of the document and specific analysis used in CRD/ORD KPP determination will be provided with the draft document. All documents going through the review process are considered draft and do not require a formal signature until after JROC validation and/or approval.

(1) Format. The submission will be an electronic copy in MS Word Version 6.0 or higher and one hard copy.

(2) Joint C4I Program Assessment Tool (JCPAT). All MNS/ORDs and CRDs are currently submitted by electronic copy to the JCPAT database. (The JCPAT SIPRNET website URL address is http://jcpat.ncr.disa.smil.mil/JECOweb.nsf). The JCPAT will be utilized by DOD components to submit documents, comments for O-6/flag reviews, search for historical information, and track the current status of documents. Information transmitted electronically and retained as a permanent JCPAT record must be accurately and completely marked IAW DOD 5200.1-PH, April 97 "DOD Guide to Marking Classified Documents."

c. Formal Document Review Process. Once a document enters the formal JROC 0-6/Flag review process, it will be staffed to all Services, CINCs, Joint Staff, and appropriate DOD agencies for review and comment. It is understood that O-6 level staffing does not necessarily result in the final Service position. Flag-level endorsement of O-6 level comments is neither required nor desired. Comments should be identified as either critical, substantive, or administrative. Convincing support for critical and substantive comments will be provided in a comment/justification format. Definitions are provided below:

(1) Critical. A critical comment indicates nonconcurrence in the document, for both the O-6 and flag review, until the comment is satisfactorily resolved. If the nonconcurrence is not resolved after flag review, the document will proceed to the Joint Requirements Panel (JRP). The briefing to the JRP will outline the unresolved issue(s).

(2) Substantive. A substantive comment is provided because a section in the document appears to be or is potentially unnecessary, incorrect, misleading, confusing, or inconsistent with other sections.

(3) Administrative. An administrative comment corrects what appears to be a typographical, format, or grammatical error. The following review process steps apply to MNSs, CRDs, and ORDs as depicted in Figure 5.

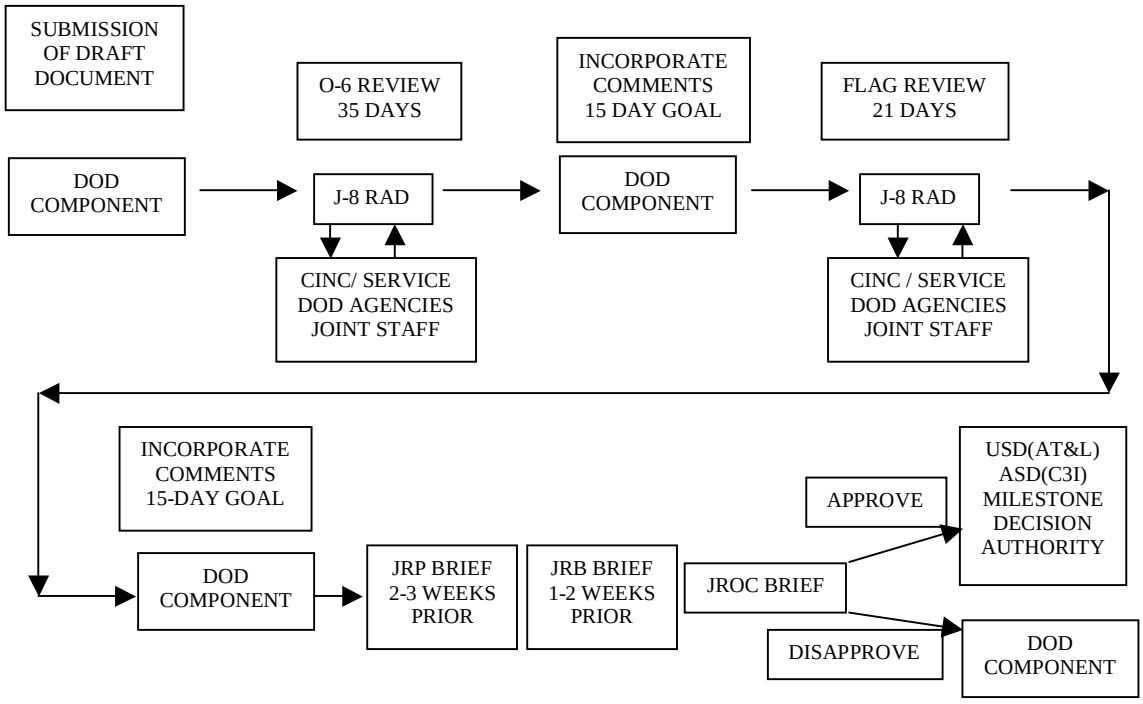

Figure 5. JROC Formal Review Process

(a) Step (1), Document Submittal. The sponsoring DOD component submits a draft document in accordance with subparagraph 3b.

(b) Step (2), O-6 Review. J-8 RAD will review and verify the format for accuracy and completeness. J-8 will staff the draft document via JROC Staff memorandum (JROCSM) for CINC, Service, Joint Staff, and appropriate DOD agency 0-6 level review. The suspense date will normally be 35 days from transmittal date. This review will include initial intelligence supportability (J-2/DIA), munitions interoperability/ insensitivity certification (J-4), and C4 interoperability requirements certification (J-6).

(c) Step (3), Incorporate O-6 Comments. J-8 will compile and forward all comments back to the sponsoring DOD component via JROCSM for incorporation or revision as necessary. Following incorporation or revision of O-6 level review comments, the sponsor should forward the draft document to J-8 RAD for flag-level review. The sponsor will provide a correlation/resolution matrix delineating the critical and substantive comments, and the results of the intelligence and interoperability requirements certification received during O-6 level review and actions taken. For ease of review, highlight the changes made

to the document with vertical bars in the margin or line-in/line-out format.

(d) Step (4), Flag Level Review. This review will include final intelligence supportability certification (J-2/DIA), munitions interoperability/insensitivity certification (J-4), and C4 interoperability requirements certification (J-6). The suspense date for providing comments and/or concurrence will be 21 days from transmittal date.

(e) Step (5), Incorporation of Flag Comments and Brief Preparation. Upon completion of flag-level review, J-8 RAD will compile and forward all comments back to the sponsor via JROCSM for final incorporation or revision. Once the sponsor has incorporated flag-level review changes, and has developed the JROC briefing, J-8 RAD will schedule JROC briefings with the JROC Secretariat.

d. JROC Briefing Format and Schedule. Briefings for the JRP, Joint Requirements Board (JRB), and JROC will be prepared in accordance with reference q. The DOD component will provide the updated draft document and briefing slides 48 hours prior to the JRP brief. The JROC should convene at least 30 days prior to the DAB, Decision Review/Interim Progress Review, or DOD CIO review to allow adequate time for Integrated Product Team (IPT) review.

4. Automated Information Systems (AIS). AIS are a combination of computer hardware and software, data, or telecommunications that performs functions such as collecting, processing, transmitting, and displaying information. Excluded are computer resources, both hardware and software, that are physically part of, dedicated to, or essential in real time to the mission performance of weapon systems. Given the potential joint nature of Automated Information Systems, all AIS MNS/ORDs will be submitted through the Joint Staff, J-8, to determine if JROC review is warranted. Figure 6 outlines the steps for determination of the level of AIS coordination and review.

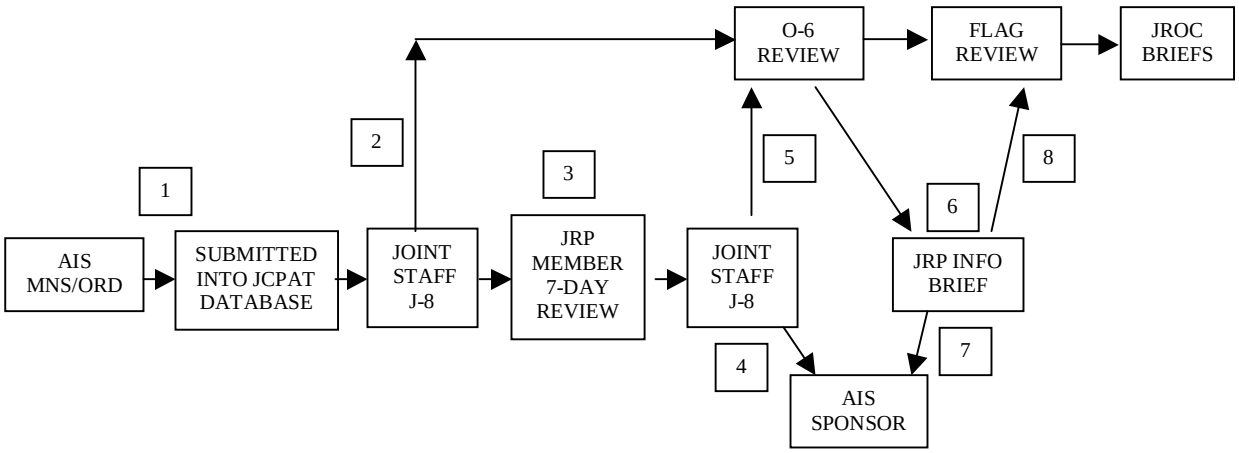

Figure 6. AIS Review Process

a. Step (1). The sponsoring DOD component submits the draft AIS MNS/ORD document into JCPAT database or J-8 RAD.

b. Step (2). J-8 RAD accesses the database and reviews the document. If the document meets MDAP and/or MAIS expenditure criteria or has been previously designated JROC special interest, the document will be staffed through normal JROC process for validation and approval.

c. Step (3). All other AIS documents will be forwarded to the Service JRP members for a 7-day review to determine whether the program has joint and/or Service impacts.

d. Step (4). If no joint or Service issues are identified, the J-8 will return the MNS/ORD, via JROCSM, for validation and approval by the AIS sponsor.

e. Step (5). If J-8/JRP members identify any joint or Service issue(s), the document will be staffed for formal JROC O-6 level review.

f. Step (6). Upon completion of O-6 review, the sponsor will provide an information briefing on the MNS/ORD, to include comments received from the O-6 review. The JRP will determine if the MNS/ORD should be considered for designation as JROC special interest.

g. Step (7). If the JRP does not recommend designation as JROC special interest, the document will be returned, via JROCSM, to the sponsor for validation and approval.

h. Step (8). If the JRP recommends MNS/ORD designation of JROC special interest, the document will be staffed for flag review and the normal JROC briefing cycle for validation and approval.

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ENCLOSURE C

MISSION NEED STATEMENT GENERATION PROCESS

1. MNS. The MNS is a non-system-specific statement of operational capability need written in broad operational terms. The four phases of the MNS generation process are depicted in Figure 7.

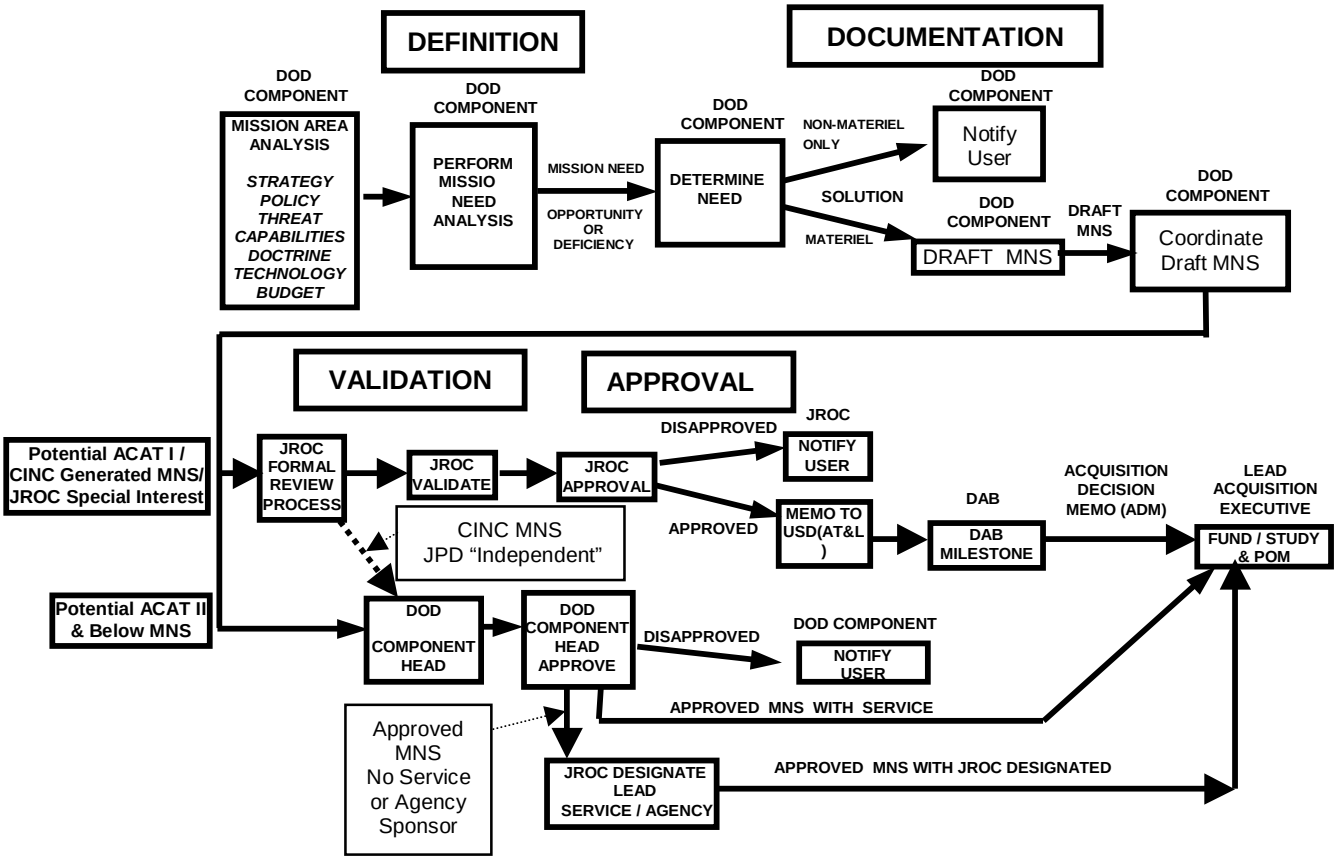

Figure 7. MNS Generation Process

a. MNS Definition Phase. Identification of deficiencies and opportunities is a continuing process, and normally begins with a review of the latest National Security Policy, National Military Strategy, Defense Planning Guidance (DPG), CINC Integrated Priority List (IPL), Joint Intelligence Guidance (if appropriate), and projected threats. This information should be incorporated into an assessment of the current and projected capability to accomplish assigned missions. This evaluation is best accomplished by an MAA.

(1) MAA. The MAA, or equivalent DOD component procedures, should identify capability deficiencies and the time frame that these deficiencies will exist. The MAA should use a "strategy–to-task" methodology (e.g., National Military Strategy to individual mission tasks) to identify the operational and support tasks needed to meet mission objectives.

(2) MNA. The MNA, or equivalent DOD component procedures, should be accomplished to evaluate the identified deficiencies using a task-to-need methodology to identify mission needs. This analysis must look across DOD component boundaries for solutions. The JCPAT database can be utilized to search for draft and validated MNSs to ensure unnecessary duplication of effort is avoided. The process may also begin with the identification of opportunities to exploit technology breakthroughs that provide new capabilities that address established needs, reduce ownership costs, or improve the effectiveness of current equipment and systems. Mission needs analysis should identify the time-based nature of the need and identify the specific time frame the need is expected to exist. If the need is to meet a current operational deficiency, the MNA should state so. If the timing of the need is based on future threats or other activities (such as the planned retirement of an existing capability), these should be identified.

(a) Nonmateriel Solutions. Nonmateriel solutions include changes in Doctrine, Organization, Training, Leadership, and Personnel (DOTLP). If the need can be fulfilled by a nonmateriel solution, the sponsor should refer it to the appropriate DOD component for action.

(b) Materiel Solutions. If the MNA determines that a materiel solution should be pursued, the deficiencies or technological opportunities should be translated into an MNS expressed in broad operational terms. When a material solution is pursued, nonmateriel DOTLP changes will be required to support the program through development and fielding.

(3) Joint Mission Area Analysis and Mission Need Analysis. During the MAA/MNA process, if initial analysis indicates potential impact to the joint community, the appropriate DOD components must be involved. The only difference between an MAA/MNA and joint MAA/MNA is the scope and participation required to adequately conduct the analysis and assessment. The intent of JMAA/JMNA is to have joint participation (CINC) during the initial assessments. CINCs should be contacted to participate during the working group meetings and can use

their Service components to reach back into Service-generated assessments. The lead DOD component for Joint MAA/MNA development is responsible to ensure proper joint participation and documentation of all analysis to support MNS development and documentation. Appendix B of this enclosure outlines a sample organizational structure and template to conduct a Joint MNA.

b. MNS Documentation Phase. When a DOD component has determined that a materiel solution should be pursued, an MNS will be prepared. The MNS sponsor will coordinate the draft document with the applicable DOD components before forwarding to the validation authority for formal review and coordination. If an existing JROC or DOD component-validated MNS covers the mission need, a new MNS will not be required. The MNS originator identifies what potential ACAT level the program may result in and whether it is a potential MDAP or MAIS. The document should use the format outlined in Appendix A of this enclosure and be no longer than five pages.

c. MNS Validation Phase. Validation of a MNS confirms that the mission need exists and cannot be satisfied by a nonmateriel solution. As a minimum, the validation authority reviews the MNS, confirms that a nonmateriel solution is not feasible, and assesses the Joint Service potential. CINC-generated MNSs will be addressed per Enclosure B. Validation is conducted by an authority other than the user and may take place at different organizational levels depending on MNS origination and potential program ACAT level.

(1) JROC Validation. JROC validation begins with the formal review of the document for all potential ACAT I/IA and identified JROC special-interest MNSs. The first step in obtaining validation is submission of the draft document for formal review as outlined in Enclosure B. The sponsor will also provide an executive summary that describes the analysis process used to develop the draft document.

(2) DOD Validation. DOD component heads (or as delegated) will validate their own potential ACAT II and below MNSs not identified as JROC special interest or statement of need as identified through analysis and documented in the product of the MNA.

(3) Joint Potential Review/Designation. The MNS sponsor will assess the joint potential for the MNSs as part of the initial validation process by coordinating the MNS with the Services. The sponsoring DOD component will assign a JPD of independent, joint interest, or joint (as

defined in the Glossary of this instruction) based on the input received during Service coordination.

d. MNS Approval Phase

(1) JROC Approval. The approval authority for all potential ACAT I/IA and identified JROC special interest MNSs is the JROC. The JROC will make a recommendation on the JPD and the lead Service or agency for programs involving more than one DOD component. The approved MNS and appropriate recommendations will be forwarded via JROCM to USD(AT&L) for consideration during the DAB, or to ASD(C3I) for consideration during the DOD CIO review. The JROC will determine whether CRD development is appropriate when they approve the MNS. The JROC may also make recommendations to USCINCJFCOM for joint experimentation to facilitate concept development and clarify joint interoperability needs.

(2) DOD Component Approval. The approval authority for potential ACAT II and below MNSs is the Chief/Director of a DOD component who will forward the MNS to the component acquisition authority.

e. Designation of Lead DOD Component. Joint programs require the designation of a lead DOD component by the Milestone Decision Authority (MDA). The MDA makes the decision based on the recommendation of the JROC for potential MDAP and MAIS programs or of the Chief/Head of the DOD component for all other programs. The responsibilities of the lead component are described in reference b, part 3, and subparagraph 3.3.5.3, "Joint Program Management." The JROC will include its lead Service or agency recommendation to USD(AT&L) for approved ACAT I MNSs with joint potential and to ASD(C3I) for appropriate ACAT IA MNSs. DOD components lacking an acquisition structure and unable to obtain Service support (e.g., unified commands [other than USSOCOM], Joint Staff, and some Defense agencies) may forward potential ACAT II and below validated and approved MNSs to the JROC. The JROC will coordinate designation of a lead Service or agency and forward the MNS to that Service's MDA for action. A DOD agency may be designated as lead component.

f. MNS Retirement. In the event a JROC-approved MNS is superseded or the mission need no longer exists, an MNS can be brought to the JROC for formal retirement. Requests for retiring an MNS with justification should be forwarded to the JROC Secretariat for staffing.

APPENDIX A TO ENCLOSURE C

MISSION NEED STATEMENT FORMAT

MISSION NEED STATEMENT
FOR
TITLE

Potential ACAT____

DATE

1. Defense Planning Guidance Element. Identify the major program planning objective or section of the Defense Planning Guidance to which this need responds. Also reference the Joint Intelligence Guidance, DOD Strategic Plan (Quadrennial Defense Review), and Military Department long-range investment plans, if applicable.

2. Mission and Threat Analyses. Identify and describe the mission need or deficiency. Define the need in terms of mission, objectives, and general capabilities. Do not discuss the need in terms of equipment or system-specific performance characteristics. Discuss the Defense Intelligence Agency-validated threat to be countered as well as the projected threat environment and the shortfalls of existing capabilities or systems in meeting these threats. Comment on the timing of the need and the general priority of this need relative to others in this mission area.

3. Nonmateriel Alternatives. Discuss the results of the mission needs analysis. Identify any changes in US or allied doctrine, operational concepts, tactics, organization, and training that were considered in the context of satisfying the deficiency. Describe why such changes were judged to be inadequate.

4. Potential Materiel Alternatives. Identify known systems or programs addressing similar needs that are deployed or are in development or production by any of the Services, agencies, or allied nations. Discuss the potential for inter-Service or allied cooperation. Indicate potential areas of study for concept exploration, including the use of existing US or allied military or commercial systems, including modified commercial systems or product improvements of existing systems. Do not evaluate these alternatives.

5. Constraints. Describe, as applicable, key boundary conditions related to infrastructure support that may impact on satisfying the need:

available facilities; logistics support; transportation; global geospatial information and services support; manpower, personnel, training, environmental, and occupational health constraints; spectrum supportability; command, control, communications, and intelligence interfaces; security; standardization and interoperability within DOD components, North Atlantic Treaty Organization, other allies and friendly nations, as well as US Government agencies and non-Government organizations. Address the operational environments (including conventional; initial nuclear weapon effects; nuclear, biological, and chemical contamination; electronic, electromagnetic and natural) in which the mission is expected to be accomplished. Define the level of desired mission capability in these environments.

6. Joint Potential Designator. Indicate the Joint Potential Designator established through the validation process.

For Automated Information Systems (AIS) Only

For AIS programs, the following additional information should be incorporated in the MNS format:

1. Defense Planning Guidance Element: Describe how the mission need relates to the OSD Principal Staff Assistant's (PSA's), DOD Chief Information Officer, and the DOD component strategic planning.

2. Mission and Threat Analyses: Describe the functional area or activity's current organization and operational environment, with emphasis on existing functional processes, including the concept of operation of the existing functional processes, procedures, and capabilities. Describe the shortfalls of existing capabilities.

a. Describe quantitative benchmarks of process performance in terms of speed, productivity, and quality of outputs where comparable processes exist in the public or private sectors.

b. Describe whether the function to be supported by the information technology should be performed by the organization that has identified the need or whether the function could be performed by a private sector source.

APPENDIX B TO ENCLOSURE C

NOTIONAL JOINT MISSION NEED ANALYSIS WORKING GROUPS

Primary Working Groups:

(1) Operations and Threat: Define Mission Analysis, Threat Analysis, and Prepare Capabilities Assessment

(2) Programs and Technology: Define Material Baseline and Prepare Concept Assessment

Supporting Working Groups:

(1) Policy: Define Policy and Critical Issues Baseline

(2) Programs and Resources: Examine Current/Future Resource Trends and Forecasts and Prepare Resources Assessment

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Joint Mission Need Analysis Working Group
Mission and Task List

Operations and Threat WG: Define Mission Analysis, Threat Analysis, and Prepare Capabilities Assessment

- Identify list of known operational deficiencies
- Identify list of required operational capabilities
- Identify list of deficiencies in meeting required operational capabilities
- Identify current and near-term system/device attributes, parameters, capabilities, and characteristics
- Identify list of potential nonmaterial alternatives to satisfy deficiencies in operational capabilities
- Identify environmental, safety and occupational health regulations and treaties (domestic, host nation, international) that could constrain operations
- Define Threat
- Conduct Threat Analysis
- Consider doctrine, strategy, tactics, operational factors, related lessons learned and warplans inputs
- Conduct Mission Analysis of required operational capabilities, including nonmaterial alternatives and potential material solutions
- Associate Threat Analysis with Mission Analysis
- Review draft MNS and compare known operational capabilities and deficiencies, if available, with those generated in Mission Analysis

- Coordinate results w/Programs and Technology's technological alternatives to define gaps requiring a material solution
- Prepare Capability Assessment of current potential solutions

Programs and Technology WG: Define Material Baseline and Prepare Concept Assessment

- Identify list of all existing technological alternatives
- Identify list of emerging technology
- Identify list of collateral technology (i.e. allies)
- Review any planned applicable ATDs and ACTDs
- Consider Threat and Mission Analysis (coord w/ Operations and Threat)
- Consider nonmaterial alternatives (coord w/Operations and Threat)
- Select master list of candidate technologies for potential alternatives
- Review draft MNS and compare potential technological alternatives, if available, to master list
- Prepare Concept Assessment of potential technological solutions to the extent required to demonstrate that there are solutions available, not to develop proponency for any specific alternative(s).

Policy WG: Define Policy and Critical Issues Baseline

- Outline associated Policies and Directives
- Identify list of associated critical operational issues that affect MNS development
- Refine list of critical issues to those that need to be addressed during MNS development
- Support preparation of Capabilities and Concept Assessments (coord w/Operations and Threat)

Programs and Resources WG: Examine Current/Future Resource Trends and Forecasts and Prepare Resources Assessment

- Identify R&D, Acquisition and Procurement periods of potential material solutions
- Examine timeframes of current budget cycles and forecasts at associated intervals: 2003, 2006, 2010, 2015, 2020
- Identify potential overarching/specific resource constraints
- Identify potential timing and priority issues
- Estimate resources required to implement nonmaterial solutions to operational deficiencies
- Estimate funding and program characteristics for generic concepts (coord w/Programs and Technology)

- Prepare Resources Assessment including comparison of material/nonmaterial solution alternatives in support of Capabilities and Concepts Assessments (coord w/Operations and Threat)

Working Group MNS Writing Tasks

Section 1: Defense Planning Guidance Element
- Policy

Section 2: Mission and Threat Analysis
- Para A: Mission
  - Operations
- Para B: Threat
  - Threat
- Para C: Current Deficiencies -- Shortfalls
  - Operations
  - Programs and Technology
- Para D: Timing and Priority
  - Operations
  - Programs and Technology
  - Policy
  - Programs and Resources

Section 3: Nonmaterial Alternatives
- Operations
- Programs and Technology

Section 4: Potential Material Alternatives
- Operations
- Programs and Technology
- Programs and Resources

Section 5: Constraints
- Para A: Overarching Constraints
  - Operations
  - Programs and Technology
  - Programs and Resources
- Para B: Logistics and Environmental, Safety, and Occupational Health Concerns
  - Operations
- Para C: Survivability
  - Operations
- Para D: Operational Environment
  - Operations

- Threat

Section 6: Joint Potential Designator

- Operations

ENCLOSURE D

CAPSTONE REQUIREMENTS DOCUMENT GENERATION PROCESS

1. CRD. The CRD captures the overarching requirements for a mission area that forms an FOS (e.g., space control, theater missile defense, etc.) or SOS (e.g., national missile defense). CRDs are intended to guide the DOD components in developing mission needs and operational requirements documents for future and legacy systems. This will facilitate development of interoperable systems through validated, performance-based overarching capabilities described in the CRD. CRDs are inherently developed for a joint mission area; accordingly, requirements for a CRD must reflect the needs of the joint force commander. A CRD is appropriate when a mission area requires more than one ORD and when systems are developed by multiple DOD components.

a. Applicability. The requirements identified for a CRD apply to any DOD component involved in identifying and further articulating requirements for all MNS/ORDs that fall under the CRD. The four phases of the CRD generation process are depicted in Figure 8.

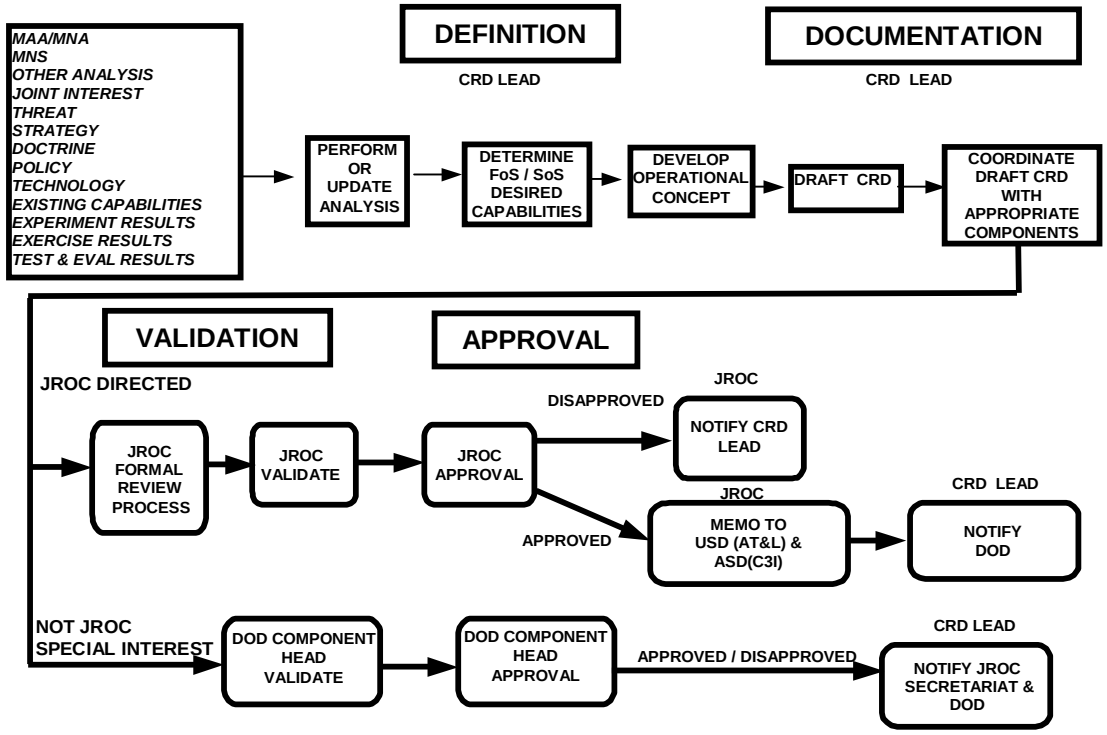

Figure 8. CRD Generation Process

(1) CRD Initiation. CRD initiation is through JROC direction. A DOD component may recommend initiation of a CRD to the JROC during MNS validation and approval or USJFCOM may recommend initiation of a CRD as an output from Joint Experimentation. CRDs will not be developed for a mission need with limited scope or if the mission need falls under an existing CRD or one in development.

(2) JROC. The JROC will designate a Joint CRD lead via JROCM. In the JROCM, the JROC will provide guidance to the CRD lead describing specific actions and timelines for CRD development. The CRD lead is responsible for developing, drafting, and sponsoring the CRD through the JROC validation and approval process. The CRD lead will identify all validated MNSs and ORDs that fall under the CRD. The JCPAT database and the initial CRD working group meetings should identify these documents. If the CRD lead identifies ACAT II and below programs under the CRD, he can forward a recommendation to the JROC that a program be designated JROC special interest, if appropriate. The CRD lead will accompany all MNS/ORDs, under the CRD, through the JROC and acquisition milestone reviews to ensure the CRD mission area capabilities and the ORD system functional and interoperability requirements are properly addressed.

(3) DOD Components. DOD components may develop CRDs to manage a component-unique FOS/SOS mission area. Prior to the CRD definition phase, the DOD component will forward a memorandum to the JROC secretariat stating the title, mission area, and timeline of the proposed CRD (this will minimized duplication and undesirable overlap if current CRDs exist for the mission area). All draft CRDs developed by DOD components will be submitted to J-8 for review and determination for JROC special interest prior to validation and approval. J-8 will use the AIS process described in Enclosure B for this determination. For those CRDs not designated JROC special interest, DOD components will be granted validation and approval authority. In all cases, the Joint Staff, J-6, will certify the Service CRDs.

b. CRD Definition Phase. A CRD must identify operational concepts, overarching capabilities, requirements for the mission area FOS/SOS, and the scope of the individual systems envisioned to compose the FOS/OoS. The CRD must identify criteria against which various combinations of systems and the contributions of individual systems can be evaluated.

(1) CRD Development. CRDs expand upon the capabilities and deficiencies identified in an MNS or tie together requirements identified in multiple MNSs/ORDs. The analysis used in developing the CRD should take into account appropriate results and insights from previous assessments; operational experience; lessons learned from actual deployments, exercises, test and evaluation; experimentation, technology demonstrations, and other sources that can identify the capabilities required for the FOS/SOS. The analysis must be made available to support the review and certification of CRDs. The CRD should also identify the factors that drive the timing of the requirements, such as retirement of existing systems or expected timing of a new threat.

c. CRD Documentation Phase. The CRD format is found in Appendix A of this enclosure. The CRD lead in coordination with the appropriate Services, CINCs, and DOD agencies will develop the proposed FOS/SOS capabilities. The CRD will include a description of the operational capability, threat, shortcomings of existing systems, and capabilities required for the family of systems.

(1) Operational Capability

(a) Defines the principal mission areas and functions that apply to the CRD (e.g., missions under the tactical missile defense (TMD) CRD include ballistic missile defense, ground-based anti-air and tactical missile defense).

(b) Defines secondary missions for those systems that have capabilities that support the CRD mission area.

(c) Defines the CRD FOS/SOS and the concept that requires how component systems are designed to interoperate with other component systems as a condition of membership in the family (e.g., the family of unmanned aerial vehicle (UAV) systems including the high-altitude endurance, medium-altitude endurance, and tactical UAVs).

(d) Defines the operational elements for the CRD mission area (e.g., TMD CRD operational elements included TMD C4I, attack operations, active defense, etc.).

(e) Defines the operational concepts for the CRD mission area. This includes the C4ISR (information exchange) operational concept, which will support the development of the operational architecture for the mission area.

(f) Defines the operational suitability and infrastructure support of the CRD mission area. Operational suitability is the degree to which a system supporting the mission area can be satisfactorily fielded, deployed, operated, and sustained while meeting collective FOS performance parameters and the user's needs for system effectiveness.

(2) Threat. Defines the principal threat for the CRD mission area (e.g., nature of threat, threat tactics, future threat capabilities).

(3) Shortcomings of Existing Systems. Defines shortcomings of fielded or planned capabilities to counter all anticipated threats (e.g., weapon system, interoperability, planning). Describes why existing C4ISR architectures (operational, systems, and technical views) cannot meet current or projected future (joint) requirements for the proposed FOS/SOS.

(4) Capabilities Required. The CRD should identify the operational requirements that articulate the capabilities Joint Force Commanders (JFCs) require to conduct operations within the CRD mission area. An operational requirement is a system capability or characteristic required to accomplish approved mission needs. The requirements will have appropriate criteria and rationale for each and be stated in threshold/objective, if appropriate. A single overarching requirement transcends all others -- all CRD systems must be interoperable. Timing of requirements should specify the time-based nature of the need and the events that are driving that need. Requirements other than interoperability that must be flowed down exactly or with some specific limits will be included and clearly stated in the CRD. One method to identify requirements is to list all the required capabilities for each operational elements for the CRD (see Figure 9).

Operational Element	Requirements
C4I	Combat ID capability Common Tactical Picture Signature Data Etc.
Attack Operations	BDA Weapon/Target Pairing Etc.
General	Transportation Modeling and Simulation Etc.
Etc.	

Figure 9. Example CRD Requirements Roll-Up

(a) Information Exchange Requirements (IERs). The warfighter also needs to identify the top-level essential interface requirements for information exchange needed to support the CRD FOS/SOS as described in (references i and s). IERs identify the elements of warfighter information used in support of a particular activity and between any two activities. IERs are to be used as the primary basis and measure for FOS/SOS interoperability in defining Interoperability KPP threshold (T) and objective (O) requirements for ORDs and CRDs. The requirements should reflect both the information needs necessary to satisfy the system(s) under consideration and the information this new capability can provide to enhance fielded systems.

(b) Interoperability. Joint Pub 1-02 definition 1 for Interoperability defines it as the ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. Although there are many facets of interoperability (e.g., fuel, ammunition, transportation, communications) that need to be identified in the CRD, the focus for the interoperability CRD KPP will be the information exchange and level of interoperability for the CRDs systems information needs as described in reference i. The CRD IERs and interoperability KPP will be the CRD leads' guidance for future ORD C4ISR development and issues to be addressed in legacy systems. The IERs are one product that is required to support development of the C4ISR operational architecture for the CRD mission area and the continued evolution of the Joint C4ISR JOA. The development of the information exchange requirements should cover both the communication requirements for command and control of the CRD systems and the level of integration for cross-system operations as depicted in Figure 10. IA is required for all DOD systems that are used to enter, process, store, display, or transmit DOD information regardless of classification or sensitivity. To assure balance or risk and gains, IA requirements must be codeveloped and coevolved with those for information interoperability.

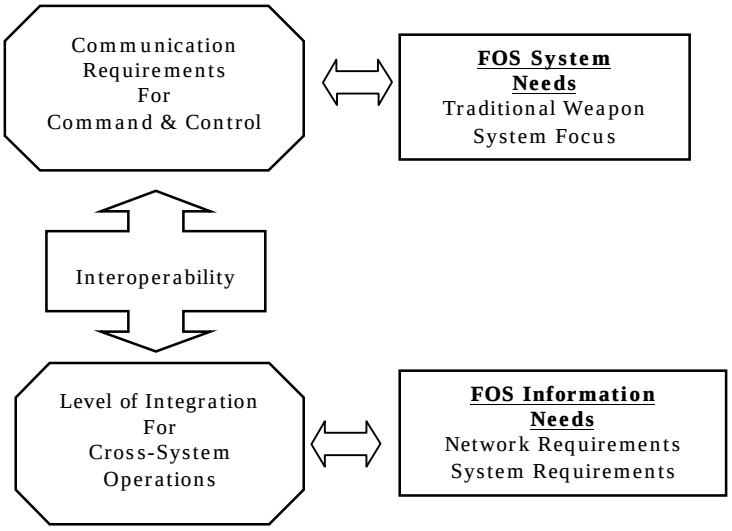

Figure 10. CRD Interoperability

(c) CRD KPP. A CRD KPP is a capability or characteristic so significant it is essential for defining the FOS/SOS required capabilities. CRD KPPs should be limited in number, output oriented, stated in Threshold/Objective format, and measurable to facilitate analysis of the progress in reaching the capabilities outlined in the CRD. The ORDs under the CRD must address the CRD KPPs relevant to the particular operational element they support. ORDs are not expected to address a CRD KPP if it does not apply to the proposed system.

1. CRD KPP Development. Selection of valid KPPs is more than just identifying a requirement and providing a threshold/objective value. A KPP should be a roll-up of a number of supporting requirements listed in the CRD. All CRDs will have as a minimum an Interoperability KPP. The methodology for developing the information Interoperability KPP is in reference i. The following is one methodology used to develop other CRD KPPs:

a. Step (1). List the requirements for each operational element identified under operational capabilities for the CRD as described above.

b. Step (2). Prioritize the supporting requirements for each element.

c. Step (3). For each operational element, build one measurable performance parameter that captures the essence of the requirements in the group.

d. Step (4). Do the same for each identified element.

e. Step (5). Determine the parameters that are most critical to the CRD mission area and designate them as Key Performance Parameters for the CRD.

NOTE: All of the operational elements identified do not necessarily need to create a CRD KPP. Likewise, an operational element could create two or more CRD KPPs, if appropriate.

2. CRD Interoperability KPP. The CRD interoperability KPP should define the level of interoperability for cross-family systems operation (e.g. TMD CRD C4I Interoperability KPP Criteria: The TMD FOS must have the ability to conduct collaborative planning, battle management, weapons coordination, and engagement to support TMD operations at the joint operational and tactical levels. The TMD FOS must: possess a common interface among individual systems (T); migrate to full JTA compliance (O) (as applicable to individual systems).) The CRD Interoperability KPP will use IERs as the primary measure for interoperability and will outline the specific framework for CRD ORDs to follow.

d. CRD Validation Phase. The validation phase is the formal review process of the CRD by an operational authority other than the user.

(1) JROC Validation. The JROC has validation authority for all CRDs unless a DOD component has been granted validation and approval authority. Any CRD forwarded for JROC validation is considered to be a draft. The CRD lead will forward the draft document and a summary of the analysis used to support the CRD development. The first step in obtaining validation is the JROC formal review of the document. The formal review process is described in Enclosure B.

(2) DOD Component Validation. The Chief/Director of a DOD component will validate component-unique CRDs for which they have been granted validation and approval authority by the JROC.

e. CRD Approval Phase

(1) JROC Approval. The approval authority for all CRDs is the JROC, unless a DOD component has been granted validation and approval authority. Following CRD approval, the JROC chairman will forward a JROCM to USD(AT&L) and ASD(C3I) for information. The CRD lead will provide a signed copy of the CRD to the JROC secretariat for historical tracking.

(2) DOD Component Approval. The Chief/Director of a DOD component is the approval authority for component-unique CRDs for which they have been granted validation and approval authority by the JROC. Following CRD approval, the DOD component will forward a signed copy of the CRD to the JROC secretariat for historical tracking.

f. CRD Review and Revalidation. The CRD lead should review the document annually and update as necessary or when directed by the JROC. Significant changes in required capability, threat, or doctrine are reasons for CRD update. Updated CRDs will be submitted to the approval authority for validation and approval.

APPENDIX A TO ENCLOSURE D

CAPSTONE REQUIREMENTS DOCUMENT FORMAT

CAPSTONE REQUIREMENTS DOCUMENT
FOR
TITLE

Date

1. General Description of Operational Capability

- Introduction
  - Describe CRD analysis and development process and DOD components that participated

- Mission Area Description
  - Summarize the mission need
  - Identify all related documents that impact CRD (MNS or other CRDs) or are impacted by the CRD (other CRDs or ORDs already in existence. State if any other CRDs will be superseded or made obsolete by this CRD
  - Identify the possible implications for change to joint doctrine

- CRD Family of Systems
  - Describe the FOS/SOS concept

- CRD operational elements
  - Identify the operational elements that are required to support the CRD mission area

- Operational Concept
  - Define the CRD mission operational concept
  - Define the C4ISR operational concept

- Operational Suitability and Infrastructure Support
  - Define General and Specific guidance for suitability and infrastructure support
  - Define other Support considerations

2. Threat. Summarize the nature of the threat to be countered, threat tactics, and projected future threat environment for the mission area. This threat information should reference Defense Intelligence Agency (DIA)-validated documents.

3. Shortcomings in Mission Area and Existing Systems

– Describe the shortcomings or absence of existing capabilities and systems to fulfill the needs of the mission area in the context of the postulated threat (e.g., weapon systems, interoperability, planning).

– Describe why existing C4ISR operational, systems and technical architectures views cannot meet current or projected future (joint) requirements for the proposed FoS/SoS.

NOTE: The intent is not to build a CRD-unique C4ISR architecture. In detail describe the proposed missing piece of currently established architectures that needs to be addressed to accomplish the mission.

4. Capabilities Required. Describe the requirements for the CRD operational elements (see Figure 11). Provide criteria and rationale for each requirement and identify the threshold/objective, if appropriate.

Operational Element	Requirements
Interoperability	Accomplishment of all critical top-level IERs (T) Accomplishment of all IERs (O)
C4I (common to all pillars)	Combat ID Capability Surveillance, Detection and Tracking Common Operational Picture Spectrum Supportability Bandwidth Management/Capacity Etc.
Attack Operations	Attack Operations Effectiveness Attack Operations C4I Attack Operations RSTA Battle Damage Assessment Etc.
Active Defense	Active Defense C4I Engagement Assessment Autonomous Operations Etc.
Passive Defense	Impact Point Prediction Inducing Targeting Error Recovery and Reconstitution Etc.
General	Transportation Modeling and Simulation Minimum Operational Capabilities Information Warfare Electromagnetic Environmental effects (E3) Impact on environment and human health Etc.

Figure 11. Example Requirement Summary

– Timing of requirements should specify the time-based nature of the need and the events that are driving that need.

– Develop the CRD KPPs as outlined in Enclosure D. Figure 12 provides example KPP table summary. Develop the CRD IERs matrix, in accordance with procedures described in the C4ISR Architecture Framework and from the IER matrix develop the Interoperability CRD KPP as outlined in Enclosure D.

Key Performance Parameter	Threshold and Objective
Interoperability	Accomplishment of all critical top-level IERs (T) Accomplishment of all IERs (O)
Combat ID	"
Early Warning	"
Etc.	"

Figure 12. Example KPP Table Summary

Appendixes

A -- References

B -- Distribution List

C -- List of CRD Supporting Analysis

Glossary

Part I -- Abbreviations and Acronyms

Part II -- Terms and Definitions

Tables

A -- Operational Element and Supporting Requirements Summary

B -- CRD KPP summary

C -- CRD IER Matrix (in the Format Specified in Reference i)

D -- As required.

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ENCLOSURE E

OPERATIONAL REQUIREMENTS DOCUMENT GENERATION PROCESS

1. ORD

a. General. The ORD is a formatted document containing operational performance requirements for a proposed concept or system. The system proposed for continued evaluation in later acquisition phases will be described in an initial ORD in terms that define the system capabilities needed to satisfy the mission need. The requirements, stated as operational performance parameters in the initial ORD, will be tailored to the system (e.g., satellite, aircraft, ship, missile, or weapon) and reflect system-level performance capabilities such as range, probability of kill, platform survivability, and the timing of the need, etc. The four phases of the ORD generation process are depicted in Figure 13.

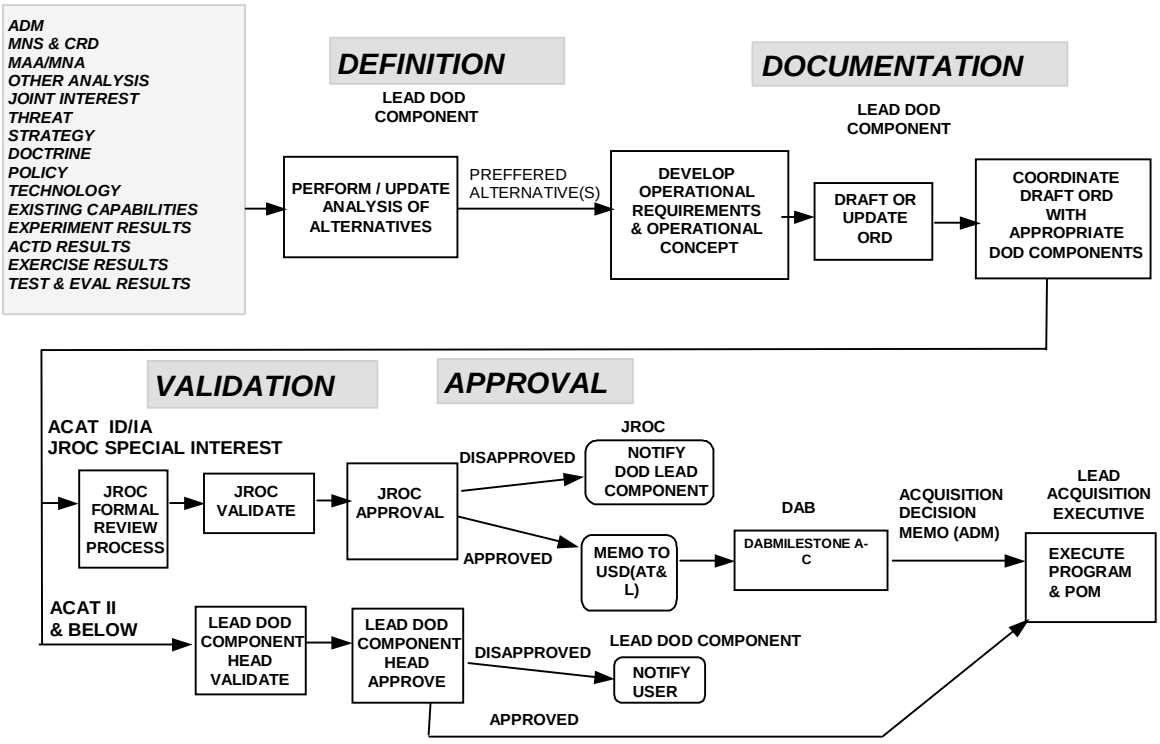

Figure 13. ORD Generation Process

b. ORD Definition Phase. The definition phase defines and justifies the development of an ORD. The ORD sponsor will apply AOA, risk reduction demonstrations, military utility assessments, Advance Concept Technology Demonstrations (ACTD), Advanced Technology Demonstrations (ATD), experimentation, test and evaluation, cost-

schedule-performance tradeoffs, requirements cost tradeoffs, and affordability analysis in the development of draft ORD requirements (especially KPPs). These parameters best characterize the most promising concept(s) to be pursued in a new acquisition program. Also, as DOD moves to reduce cycle time of traditional acquisition activities, through evolutionary acquisition, the ORD will serve as the vehicle for documenting successive operational requirements and managing the scope of that acquisition process. The ORD should also identify the factors that drive the timing of the requirements, such as retirement of existing systems or expected timing of a new threat.

(1) Time-Phased Requirements in Support of Evolutionary Acquisition. Evolutionary acquisition is a streamlined acquisition strategy that fields a core capability with a modular open structure and provides for additional future increments in capability upgrades. Time-phased requirements support evolutionary acquisition in phases by allowing systems to be delivered to the field in increasing increments of capability. The future (follow-on) increments are developed as blocks or models by the acquisition community as requirements are refined by the warfighter's increased understanding of the delivered capability, the evolving threat, and available technology. The proposed approach for subsequent incremental developments should be included in the acquisition strategy documents. Depending on the size and scope of the additional capability, some increments may need to be covered by an annex to the existing ORD, may require a new ORD, or a manner agreed to by the JROC. Evolutionary acquisition plans should be consistent with other acquisition plans and developed by the acquisition community with the support of the user community. Evolutionary acquisition is a preferred approach but is not necessarily appropriate for all development efforts. Automated information systems are prime candidates for evolutionary acquisition.

(2) Demonstrations to Assess Military Utility. Military utility demonstrations such as ACTDs, ATDs, requirements definition/technical demonstration activities during the concept and technology development phase, or experimentation should be considered for concurrent requirements generation and concept risk reduction. Military utility demonstrations should be conducted by the CINCs and Services to ensure user/warfighter involvement early in the requirements generation process. During the concept and technology development phase, the program may employ one or more design concepts to demonstrate technical maturity, facilitate analysis of alternatives, support CAIV trades, and refine threshold and objectives initially stated as broad measures of effectiveness.

(3) Advanced Concept Technology Demonstrations. The goal of ACTDs is to assess the military utility of a significant new capability and to conduct that assessment at a scale size adequate to clearly establish operational utility and system integrity. The JROC will prioritize proposed ACTD candidates, together with proposed CINC sponsor and lead Service or agency. Once the ACTDs are prioritized, the JROC will forward the prioritization with CINC sponsor and lead Service or agency, via JROCM, to USD(AT&L). This action equates to a mission need determination for each ACTD. The lead Service is responsible for developing the ORD for ACTDs that have shown military utility and have been approved to transition to the formal acquisition process. The ACTD management plan should address the schedule for anticipated ORD development to ensure a smooth transition to the acquisition process. The JROC requests that if funding is insufficient to support the candidates in priority order, the JROC be consulted regarding the rationale for implementing the ACTDs out of priority order.

(4) CRD Interface. The Services will determine if the ORD they are developing falls under any existing CRD. If the ORD is under a CRD mission area, then the ORD sponsor must work closely with the CRD lead during ORD definition and development to ensure ORD requirements are traceable to CRD requirements, where applicable. The ORD sponsor must gain CRD lead concurrence in traceability prior to the ORD entering JROC validation. The JCPAT database and the Joint Staff, J-8, will catalog all validated and approved CRDs.

c. ORD Documentation Phase. The ORD format can be found in Appendix A of this enclosure. The ORD sponsor, in coordination with the appropriate DOD components, will prepare the ORD. The ORD provides a bridge that links the needs and capabilities identified in the MNS and CRD (if applicable) to the Acquisition Program Baseline (APB) and the contractual specifications for a program. The ORD should be written at the appropriate level to describe the system and is initially submitted at milestone B (or Milestone I) with broad objectives and acceptable requirements. On the rare occasions when program initiation occurs prior to Milestone B, an ORD may be required in advance of Milestone B to support program initiation and the development of the required acquisition documentation. Time-phased requirements are the preferred approach and must be considered based on the maturity of technologies and the relative costs and benefits of executing the program in blocks versus a single step. The initial ORD will include the evaluation of requirements based on commercial market potential required by reference b. As a program is further defined between the acquisition milestones, the ORD is updated to reflect the results of analysis, experimentation, testing, technology insertion, CAIV and cost-schedule

performance trades. If the program falls under a CRD, the ORD will show linkage and the contribution to the appropriate CRD operational requirements and CRD KPPs. The ORD will include a description of operational capability, threat, shortcomings of existing systems and C4ISR architectures, capabilities required for the system, program support, force structure, and schedule/program affordability for the system.

(1) Description of Operational Capability

(a) Summarizes the mission need.

(b) Describes the overall mission area(s) that the system will support. Identifies the CRD(s) that impact the system (if appropriate).

(c) Describes the type of system proposed.

(d) Defines the missions that the system will perform (e.g., close air support, suppression of enemy air defenses, interdiction).

(e) Defines the operational and support concept(s) for the proposed system. This includes the C4ISR (information exchange) operational concept.

(f) Describes if fielding of increments (time phased) of system capability that support evolutionary acquisition is appropriate for the proposed system.

(2) Threat. Defines the principal threat for the system (e.g., nature of threat, threat tactics, future threat capabilities).

(3) Shortcomings of Existing Systems and C4ISR Architectures. Defines shortcomings of fielded systems to counter all anticipated threats (e.g., weapon system; interoperability; lift; environmental, safety, and occupational health regulatory restrictions). Describes why existing C4ISR architectures (operational, systems and technical views) cannot meet current or projected future (joint) information exchange requirements for the proposed system.

(4) Capabilities Required. The initial ORD will establish requirements describing the capabilities and characteristics of the proposed system. The requirements will be written in output-oriented and measurable terms in threshold/objective format with criteria and rationale for each. The ORD will identify the specific requirements contributing most significantly to the desired operational capability and

provide a relative importance of meeting or exceeding each requirement threshold or objective value. This will be used to guide the acquisition community in making tradeoff decisions between the threshold and objective levels of the stated requirements. The ORD requirements (especially KPPs) and supporting rationale should reflect analytic insights on the preferred alternative(s) identified in the AOA, cost-schedule-performance tradeoffs, requirements cost tradeoffs, experimentation, test and evaluation, and affordability analysis. The ORD requirements will be refined at successive milestone decision points based upon the tradeoffs made during each phase of the acquisition process. One method to identify requirements is to list all the required capabilities for each mission area/function for the proposed system (see Figure 14).

Mission/Function	Capabilities Required
CAS	Combat radius Targeting Payload Etc.
Defensive Counter Air	Maneuverability Acceleration Combat radius Etc.
C4ISR	Combat ID Battlespace Awareness Offboard sensor inputs Bandwidth Management/Capacity Etc.
Etc.	Etc.

Figure 14. Example ORD Capabilities Required

(a) Information Exchange Requirements (IERs). The warfighter also needs to identify the top-level essential interface requirements for information exchange needed to support the proposed system as described in reference s. IERs identify the elements of warfighter information used in support of a particular activity and between any two activities. Top-level IERs are to be used as the primary basis and measure for system interoperability in defining Interoperability KPP threshold (T) and objective (O) requirements for ORDs and CRDs. These IERs should be limited to only the top-level requirements that identify the onboard and offboard informational needs for the system to support the interoperability requirement. The IERs will be extracted from the ORD along with the Interoperability KPP and utilized in the C4ISP as one

of the tools used to develop the operational architecture for the system. The goal is to use established architectures for information exchange and identify unique system information requirements that cannot be supported with current/projected architectures. The intent is to eliminate duplication and having individual systems creating their own (stovepiped) C4ISR architectures.

(b) Interoperability. Joint Pub 1-02 definition (2) for interoperability defines it as the condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. Even though there are many facets of interoperability (e.g., fuel, ammunition, transportation, communications) that need to be identified in the ORD, the focus for the interoperability ORD KPP will be the information exchange and interoperability level for the ORD system information needs. The intent is for the warfighter to outline the essential information exchange requirements for the system as described above. The requirements should reflect both the information needs necessary to satisfy the system under consideration and the information this new capability can provide to enhance fielded systems. The development of the information exchange requirements should cover both the communication requirements for command and control of the proposed system and the level of integration for cross system operations as depicted in Figure 15.

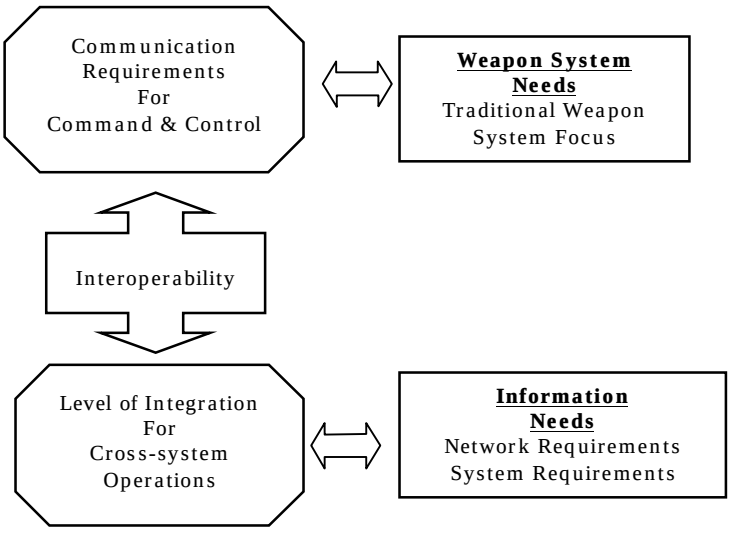

Figure 15. ORD Interoperability

IA is required for all DOD systems that are used to enter, process, store, display, or transmit DOD information regardless of classification or sensitivity. IA is defined as the Information Operations that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and nonrepudiation and included restoration through protection, detection, and reaction capabilities. To assure balance or risk and gains, IA requirements must be codeveloped and coevolved with those for Information Interoperability (reference j).

(c) ORD KPPs. ORD KPPs are those system capabilities or characteristics considered essential for successful mission accomplishment. The ORD should only contain a limited number of KPPs (approximately eight or fewer) that capture the parameters needed to reach the overall desired capabilities for the system. Failure to meet an ORD KPP threshold can be cause for the system selection to be reevaluated or the program to be reassessed or terminated. ORD KPPs are extracted from the ORD and included in the performance section of the Acquisition Program Baseline (APB) document at each milestone beginning with Milestone B (or Milestone I/program initiation). ORDs will have an Interoperability KPP. The following guidelines should be applied when selecting KPPs:

1. Is it essential for defining system or required capabilities?

2. Is it warfighting-oriented or does it contribute to the improvement in warfighting capabilities?

3. Is it achievable/testable?

4. Can the numbers/percentages be explained by analysis?

5. If not met, are you willing to look at canceling the program?

(d) ORD KPP Development. Selection of valid KPPs is more than just identifying a requirement and providing a threshold/objective value. A KPP should be a roll-up of a number of supporting requirements developed listed in the ORD. The following is one methodology for developing KPPs:

1. Step (1). List system required capabilities for each mission/function as described above.

2. Step (2). Prioritize these requirements.

3. Step (3). For each mission/function build one measurable performance parameter.

4. Step (4). Determine the parameters that are most critical to the system and designate them as Key Performance Parameters in the ORD.

NOTE: All missions/functions for the system may not need a KPP. Likewise, certain areas may create two or more KPPs.

(e) ORD Interoperability KPP. The ORD Interoperability KPP should define the level of interoperability for the proposed system. (e.g., PAC-3 ORD Interoperability KPP criteria: TADIL-J (T), Joint Composite Tracking Network (JCTN) (O)). The interoperability KPP will be derived from the set of IERs that characterize the information exchanges to be performed by the proposed system and will be developed using the methodology described in reference i. ORDs that come under the umbrella of a CRD should ensure compliance with the CRD Interoperability KPP.

(f) ORD sponsor/CRD Lead Interface. If the ORD falls under a CRD, the ORD sponsor will work closely with the CRD lead to ensure ORD/CRD C4ISR interoperability. The ORD author must document how the ORD KPPs and requirements respond to all applicable CRD KPPs and requirements in Appendix D of the ORD.

(5) Program Affordability. Cost will be addressed in the ORD. Inclusion of cost allows the DOD component sponsor to emphasize affordability early in the proposed program. The cost figure should be stated in terms of a threshold and objective (not necessarily a KPP) in order to provide flexibility to allow for program evolution and CAIV trade studies. The DOD component sponsor may make cost a KPP if it desires and identify the cost it wishes to evaluate. The cost will be extracted from the ORD and included in the cost section of the APB.

d. ORD Validation Phase. The validation phase for an ORD includes the formal review of the document to confirm the operational requirements for the system. The validation authority for the ORD is dependent upon potential ACAT level and/or if a program is designated JROC special interest.

(1) JROC Validation

(a) Milestone B (or Milestone I/Program Initiation). All ACAT I/IA and designated JROC special interest ORDs will be reviewed and their KPPs validated by the JROC at Milestone B (or Milestone I/Program Initiation).

(b) Milestone C and System Development and Demonstration Phase Interim Progress Reviews (or Milestone II/III). The JROC will review ACAT ID/IAM and JROC special interest ORDs at Milestone C (or Milestones II and III) to support the milestone decision. The JROC may, at its discretion, review ACAT ID/IAM and JROC special-interest ORDs prior to the conduct of a decision review/interim progress review during the system development and demonstration phase. The JROC maintains validation authority for ACAT ID/IAM ORDs even if the JROC has delegated ORD approval authority to a DOD component. The JROC will also review the ACAT ID/IAM ORDs if a recommendation is made to change a KPP at any time during the life of a program. The JROC retains authority to review ACAT IC/IAC ORDs if there are changes to JROC-validated KPPs, otherwise ACAT IC/IAC ORDs need not return to the JROC for Milestone C and interim progress review decisions (or Milestone II and III decisions).

(2) DOD Component Validation. The Chief/Head of a DOD component (or as delegated) may validate their own ACAT IC/IAC and below ORDs at Milestone C and at an interim progress review during the system development and demonstration phase (or at Milestones II and III), if ORD approval has been delegated to the DOD component and JROC-validated KPPs are not changed.

(3) Formal ORD Review. The first step in obtaining validation is the formal review of the document. The review process is described in Enclosure B. Any ORD forwarded for JROC validation is considered draft and must have supporting analysis for proposed KPPs along with the AOA, if appropriate, included in the package.

e. ORD Approval Phase. The ORD approval phase documents the approval authority's concurrence in the final validated document. Approval authority is dependent upon potential ACAT level, if designated JROC special interest, or if approval authority has been delegated. Delegation of approval authority allows the designated lead DOD component, with coordination with the appropriate DOD components, to make requirements trades between acquisition milestones without JROC approval. Key Performance Parameters or other specifically identified items by the JROC cannot be changed without JROC approval.

(1) JROC Approval

(a) Milestone B (or Milestone I/Program Initiation). The approval authority, at Milestone B (or Milestone I/Program Initiation), for all potential ACAT I/IA ORDs and KPPs is the JROC. The JROC will normally delegate ORD approval authority for potential ACAT I/IA ORDs to the DOD component sponsor at the Milestone B (or Milestone I/Program Initiation) JROC review. However, the JROC may retain approval authority for selected ACAT I programs. Following JROC approval, the JROC chairman will forward a milestone review and lead Service recommendation, including a list of Key Performance Parameters, to USD(AT&L) via JROCM for consideration during the DAB, or to ASD(C3I) for consideration during the DOD CIO review. If a JROC special interest program is not going to a DAB or DOD CIO review, the recommendations will be forwarded to the appropriate DOD component milestone decision authority.

(b) Milestone C (or Milestone II/III). The JROC will approve ACAT ID/IAM and JROC special-interest ORDs at Milestone C (or Milestones II and III) to support the milestone decision. The JROC may, at its discretion, review ACAT ID/IAM and JROC special interest ORDs prior to the conduct of an interim progress review during the system development and demonstration phase. If the JROC retained approval authority for an ACAT I/IA or JROC special interest program, then the JROC will review the ORD and KPPs prior to each milestone and may, at its discretion, review ACAT I/IA and JROC special interest ORDs prior to the conduct of an interim progress review during the system development and demonstration phase. The JROC Chairman will forward a Milestone review and lead Service recommendation, including a list of Key Performance Parameters, to USD(AT&L) via JROCM for consideration during the DAB or to ASD(C3I) for consideration during the DOD CIO review.

(2) DOD Component Approval. The Chief/Head of the DOD component (or as delegated) are the approval authority ACAT IC/IAC, II and below ORDs if ORD approval has been delegated by the JROC at Milestone B (or Milestone I/Program Initiation). Approved ORDs are submitted by the approval authority to the appropriate DOD component MDA for action.

f. ORD Review/Revalidation. The ORD is refined and updated when necessary and prior to each acquisition milestone to incorporate results of the activities during each acquisition phase (i.e., cost, schedule, and performance trades, testing, and AOA). There is no need to update the

MNS because the ORD builds upon this initial document. The ORD should be thoroughly reviewed by the DOD component sponsor, including other appropriate DOD components for joint program ORDs. Any changes to the initial ORD will be carefully reviewed by the ORD validation and approval authorities to determine whether or not the changes in the requirements should apply to the system currently being developed, or they should be deferred to subsequent blocks if an evolutionary acquisition approach is used. Also, the ORD validation and approval authorities, with assistance from the development and test communities, will ensure the deficiencies and requirements are still valid when compared to the latest threat, guidance, and strategy documents. Also, the ORD should be vigorously scrubbed to ensure that the KPPs reflect the minimum essential requirements.

2. Acquisition Program Baseline (APB) Procedures. The APB contains the cost, schedule, and key performance parameters for the program. APBs are described in reference b, section 3.2.2. With progression through the requirements evolution and acquisition milestone process, the APBs will change focus from concept to development to production. KPPs from the ORD, combined with cost and schedule measures, will be included within the APB with their associated objectives and thresholds. APBs are prepared by the program manager using the format specified in Appendix I to reference b. APBs are submitted with the required Milestone documentation for Milestone B (or Milestone I/Program Initiation) and each succeeding Milestone. The KPPs objectives and thresholds in the APB must be validated by the appropriate authority before the MDA's review. The MDA is the approval authority for all APBs in accordance with reference b, section 3.2.2.1, "Preparation and Approval." Before all major milestone decision reviews for ACAT ID, ACAT IAM, JROC special interest programs and for all APB changes, the JROC will review the APB's cost, CAIV objectives, schedule, and key performance parameters (objectives and thresholds) to ensure they satisfy the mission need.

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APPENDIX A TO ENCLOSURE E

OPERATIONAL REQUIREMENTS DOCUMENT FORMAT

OPERATIONAL REQUIREMENTS DOCUMENT
FOR
TITLE
ACAT _____
Prepared for Milestone ___ Decision

Date

1. General Description of Operational Capability

– Summarize the mission need. (If a documented MNS did not precede the ORD, explain the process that investigated alternatives for satisfying mission need).

– Describe the overall mission area.

– Identify CRD the proposed system falls under (if appropriate).

– Describe the proposed system.

– Describe the analysis that supports the proposed system.

– Define the missions that the proposed system will be tasked to accomplish.

– Describe the operations and support concepts summarizing the system's place on the future battlefield, its employment/operation, its organizational setting, and its sustaining and support interfaces.

– Describe the C4ISR (information exchange) operational concept.

– Describe the benefits of Evolutionary Acquisition for the proposed system (if appropriate). Requirements should be specified in terms of reasonable increments of capability described in the timeframes that will support an evolutionary acquisition approach. The requirements must be time-based with the initial capability targeted for a 6-year IOC from program initiation. Requirements beyond the initial IOC must be specified in a time-phased manner and be matched to projected threats. Only those initial requirements that can be validated by the user as needed within the FYDP should be defined for the initial acquisition. Subsequent requirements would take into account achievements in capability from preceding blocks.

2. Threat. Summarize the threat to be countered and projected threat environment. (Reference DIA or Service Technical Intelligence Center-approved documents. For potential MDAPs, reference the DIA-validated threat assessment.)

3. Shortcomings of Existing Systems and C4ISR Architectures

– Describe why existing systems cannot meet current or projected requirements.

– Describe why existing C4ISR operational, system and technical architecture views cannot meet the requirements for the proposed system.

4. Capabilities Required

– Identify the operational performance parameters (capabilities and characteristics) required for the proposed system.

– Articulate the requirements in output oriented, and measurable terms. Use Threshold/Objective format, and provide criteria and rationale for each requirement. Rationale should include the mission-unique environment for the system (e.g., wartime, peacetime, transition conditions).

– Timing of requirements should specify the time-based nature of the need and the events that are driving that need.

– ORD KPPs. Develop the ORD KPPs as outlined in Enclosure E. Figure 16 provides an example KPP table summary. Develop the ORD IERs matrix in accordance with procedures described in references i and s, and from the IER matrix develop the Interoperability ORD KPP as outlined in Enclosure D.

Key Performance Parameter	Threshold and Objective
Interoperability	Accomplishment of all critical top-level IERs (T) Accomplishment of all IERs (O)
Combat ID	"
Early Warning	"
Etc.	"

Figure 16. Example KPP table summary

a. System Performance

– Describe mission scenarios (wartime and peacetime, if different) in terms of mission profiles, employment tactics, countermeasures, and environmental conditions (all inclusive: natural and man-made; e.g., weather, ocean acoustics, information warfare).

– Identify system performance parameters such as range, accuracy, payload, speed, mission reliability, interoperability, etc. Recommend which parameter will be considered a KPP.

b. Information Exchange Requirements. Identify the top-level Information Exchange Requirements for the system for each mission area

that the system is proposed to support (e.g., CAS, AAW, surveillance, reconnaissance) as described in reference i.

c. Logistics and Readiness

– Include measures for mission-capable rate, operational availability, frequency and duration of preventive or scheduled maintenance actions, etc.

– Describe in terms of mission requirements considering both wartime and peacetime logistics operations.

– Identify combat support requirements including battle damage repair capability, mobility requirements, expected maintenance levels, and surge and mobilization objectives and capabilities.

d. Environmental, Safety and Occupational Health (ESOH) and Other System Characteristics. Characteristics that tend to be design, cost and risk drivers. Address environmental, safety and occupational health considerations.

– Address electronic attack (EA) and Wartime Reserve Modes (WARM) requirements.

– Conventional, initial nuclear weapons effects, and nuclear, biological, and chemical contamination (NBCC) survivability.

– Natural environmental factors (such as climatic, terrain, and oceanographic factors).

– Unplanned stimuli (such as fast cook-off, bullet impact, and sympathetic detonation).

– Address safety issues regarding Hazards of Electromagnetic Radiation to Ordnance (HERO).

– Define the expected mission capability (e.g., full, percent degraded) in the various environments. Include applicable safety parameters such as those related to system, nuclear, explosive, and flight safety.

– Identify physical and operational security needs.

– Address Electromagnetic Environmental Effects (E3) and Spectrum Supportability for systems and equipment.

5. Program Support. Establish support objectives for initial and full operational capability. Discuss interfacing systems (at the system/subsystem, platform, and force levels), specifically those related to command, control, communications, computers, and intelligence (C4I); transportation and basing; and standardization and interoperability. Assign a joint potential designation (joint, joint interest, or independent).

a. Maintenance Planning. Identify maintenance tasks to be accomplished and time phasing for all levels of maintenance. Include

programmed maintenance and surveillance inspections such as nuclear hardness and structural integrity. Describe the envisioned planning approach for contract versus organic repair.

b. Support Equipment. Define the standard support equipment to be used by the system.

– Describe the test and fault isolation capabilities desired of automatic test equipment at all levels, expressed in terms of realistic and affordable probabilities and confidence levels.

c. C4I/Standardization, Interoperability, and Commonality

– Describe how the system will be integrated into the command, control, communications, computers, and intelligence architecture that is forecast to exist at the time the system will be fielded. Include impact on current/planned C4ISR infrastructure, including methodology for assessment.

– Identify data and data fusion requirements (data, voice, video), computer network support, and anti-jam requirements.

– Identify unique intelligence information requirements, including intelligence interfaces, communications, and data base support pertaining to target and mission planning activities, threat data, etc.

– Describe considerations for joint use, NATO cross-servicing, etc.

– Identify procedural and technical interfaces, and communications, protocols, and standards required to be incorporated to ensure compatibility and interoperability with other Service, joint Service, NATO, and other allied and friendly nation systems.

– The system must comply with applicable information technology standards contained in the DOD Joint Technical Architecture (JTA).

– Address interface requirements with GCCS or COP (reference k).

– Address IA that cover the defensive capabilities that provide for the availability, integrity, authentication, confidentiality, and nonrepudiation of the information to be exchanged and used. IA should also include those characteristics needed for restoration through protection, detection, and reaction capabilities. To balance risks and gains, IA and Information Interoperability characteristics must be codeveloped and coevolved. This includes implementation of Public Key Infrastructure (PKI) required to ensure information security over all voice, video, and data transmission. Interconnection of systems operating at different classification levels will be accomplished by processes (e.g., SECRET and below interoperability (SABI)) that have been approved by the DOD CIO (references h and i).

– Address energy standardization and efficiency needs for both fuels and electrical power as applicable.

d. Computer Resources

– Identify computer resource constraints (examples include language, computer, database, architecture, or interoperability constraints).

– Address all mission-critical and support computer resources, including automated test equipment.

– Describe the capabilities desired for integrated computer resources support.

– Identify any unique user interface requirements, documentation needs, and special software certifications.

e. Human Systems Integration. Address HSI domains to include:

– Establish broad manpower constraints for operators, maintainers, and support personnel.

– Identify requirements for manpower factors that impact system design (utilization rates, pilot-to-seat ratios, and maintenance ratios).

– Establish broad cognitive, physical, and sensory requirements for the operators, maintainers, or support personnel who contribute to, or constrain, total system performance.

– Establish requirements for human performance that will achieve effective human-system interfaces. Identify requirements for combining, modifying, or establishing new military occupational specialties.

– Describe the training concept to include requirements for the training support package (e.g., simulators, training devices, embedded training) and training logistics. Include safety or health and critical errors that reduce job performance or system effectiveness given the operational environment. Determine objectives and thresholds for the above requirements, as appropriate.

f. Other Logistics and Facilities Considerations.

– Describe the provisioning strategy for the system.

– Specify any unique facility, shelter, supporting infrastructure, environmental compliance requirements, and associated costs and availability milestone schedules in support of the requirement.

– Identify special packaging, handling, and transportation considerations.

– Define unique data requirements such as engineering data for depot support and technical orders for the system and depot.

g. Transportation and Basing. Describe how the system will be moved either to or within the theater. Identify any lift constraints. Detail

the basing requirements (main and forward operating bases) and associated facilities needed for training.

h. Geospatial Information and Services. Identify imagery, imagery intelligence, imagery-derived MASINT and geospatial information. Where possible, National Imagery and Mapping Agency standard military data will be used.

i. Natural Environmental Support. Identify the standard and unique weather, oceanographic, and astrogeophysical support required. Include data accuracy and forecast requirements.

6. Force Structure. Estimate the number of systems or subsystems needed, including spares and training units. This is only an estimate of the number of systems/subsystems needed, and will not serve as the definitive source for documenting the distribution or basis of issue. Identify units or platforms and quantities of these platforms (including other Services or Government agencies, if appropriate) that will employ the systems or subsystems being developed and procured to satisfy this Operational Requirements Document.

7. Schedule. Define what actions, when complete, will constitute attainment of initial and full operational capability (leave flexible for these to be revised as the program is progressively defined and trade-off studies are completed).

– Clearly specify the operational capability or level of performance necessary to declare initial and full operational capability. Include the number of operational systems, operational and support personnel, facilities, supporting infrastructure and organizational, intermediate, and depot support elements that must be in place. If availability in a specific timeframe is important, specify an objective for initial operational capability. Describe the impact if this objective is not achieved and identify a window of acceptability if appropriate.

8. Program Affordability. Cost will be addressed in the ORD. Inclusion of cost allows the DOD component sponsor to emphasize affordability early in the proposed program. The cost figure should be stated in terms of a threshold and objective (not necessarily a KPP) in order to provide flexibility to allow for program evolution and CAIV trade studies. The DOD component sponsor may make cost a KPP if it desires and identify the cost it wishes to evaluate. The cost will be extracted from the ORD and included in the cost section of the APB.

Appendixes

A-- References
B -- Distribution List
C -- List of ORD supporting analysis
D -- CRD(s) -ORD KPP/requirements cross walk/linkage (when CRD is applicable

Glossary

Part I -- Abbreviations and Acronyms
Part II -- Terms and Definitions

Tables

A -- ORD KPP summary
B -- Information Exchange Requirements Matrix

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ENCLOSURE F

REFERENCES

a. DOD Directive 5000.1, 23 October 2000, "The Defense Acquisition System."

b. DOD Instruction 5000.2, 23 October 2000, "Operation of the Defense Acquisition System."

c. DOD Memorandum, 23 October 2000, "Mandatory Procedures MDAPs and MAIS Acquisition Programs."

d. Title 10, United States Code, sections 151, 153, 154, 155, 161, 162, 163, 166, 167, 181, 2223, 3013, 5013, and 8013.

e. CJCS Instruction 3010.02, 9 December 1998, "Joint Vision Implementation Master Plan."

f. CJCS Instruction 3137.01B, 22 January 1999, "The Joint Warfighting Capabilities Assessment Process."

g. CJCS Instruction 3451.01, 1 April 1999, "CINC Field Assessment."

h. CJCS Instruction 5123.01, 2 May 1997, "Charter of the Joint Requirements Oversight Council."

i. CJCS Instruction 6212.01B, 8 May 2000, "Interoperability and Supportability of National Security Systems and Information Technology Systems."

j. CJCS Instruction 6510.01B, 22 August 1997, "Defensive Information Operations Implementation."

k. CJCS Instruction 6721.01, 18 February 1995, "Global Command and Control Management Structure."

l. DOD Directive 8000.1, 27 October 1992, "Defense Information Management (IM) Program."

m. DOD Directive 4630.5, 12 November 1992, " Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems."

n. DOD Directive 4630.8, 18 November 1992, " Procedures for Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems."

o. DOD Directive 5100.1, "Functions of the Department of Defense, and its Major Components, " September 25, 1987

p. DOD Directive 5100.3, "Support of the Headquarters of Unified, specified, and Subordinate Joint Commands, " November 1, 1988 with Administrative Reissuance Incorporating through Change 2, October 21, 1993.

q. DOD Electronic Desk Reference Set, “Defense Acquisition Deskbook.”

r. JROCM 032-97, 31 March 1997, “JROC Administrative Guide.”

s. C4ISR Architecture Framework, Version 2.0, 18 December 1997.

t. Public law 105-261, Strom Thurmond National Defense Authorization Act for FY 1999, Sec. 331.

u. DOD 5200.1-PH, April 97 “DOD Guide to Marking Classified Documents.

v. CJCSI 6250.01, 20 October 1998, "Satellite Communications."

GLOSSARY

PART I--ABBREVIATIONS AND ACRONYMS

A

AAW	antiair warfare
ACAT	acquisition category
ACTD	Advanced Concept Technology Demonstration
AOA	Analysis of Alternatives
APB	Acquisition Program Baseline
AIS	Automated Information System
ASD(C3I)	Assistant Secretary of Defense (Command, Control, Communications and Intelligence)

C

C4	Command, Control, Communications, and Computers
C4I	Command, Control, Communications, Computers, and Intelligence
C4ISP	Command, Control, Communications, Computers, and Intelligence Support Plan
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CAIV	Cost as an Independent Variable
CIO	chief information officer
CRD	Capstone Requirements Document

D

DAB	Defense Acquisition Board
DIA	Defense Intelligence Agency

DODD	Department of Defense Directive
DOTMLP	doctrine, organizations, training and education, materiel, leadership, and personnel
DOTLP	doctrine, organization, training, leadership, and personnel
DPG	Defense Planning Guidance

E

E3	Electromagnetic Environment Effects
EA	Electronic attack

F

FOS	Family of Systems
FYDP	Future Years Defense Program

G

GCCS	Global Command and Control System

I

IA	Information Assurance
IAW	in accordance with
IER	Information Exchange Requirement
IOC	Initial Operational Capability
ISR	intelligence, surveillance, and reconnaissance
IPT	Integrated Product Team
IT OIPT	Information Technology Overarching Integrated Product Team
ITS	Information Technology Systems

J

JMAA	Joint Mission Area Analysis
JMNA	Joint Mission Need Analysis
JOA	Joint Operations Architecture
JPD	joint potential designator
JRB	Joint Requirements Board
JROC	Joint Requirements Oversight Council
JROCM	JROC memorandum
JROCSM	JROC Staff memorandum
JRP	Joint Requirements Panel
JTA	Joint Technical Architecture

K

KPP	key performance parameter

M

MAA	Mission Area Analysis
MAIS	Major Automated Information System
MASINT	Measurement and Signals Intelligence
MCEB	Military Communications-Electronics Board
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MIB	Military Intelligence Board

MNA	Mission Needs Analysis
MNS	Mission Need Statement
MOE	Measure of effectiveness
MS	Milestone

N

NATO	North Atlantic Treaty Organization
NBCC	Nuclear, Biological, and Chemical Contamination
NIMA	National Imagery and Mapping Agency
NSS	National Security Systems

P

PPBS	Planning, Programming, and Budgeting System
POC	Point of Contact
PSA	Principal Staff Assistant

O

ORD	Operational Requirements Document

R

RAD	Requirements and Acquisition Division
RDT&E	Research, Development, Test, and Evaluation

S

SOS	System of Systems
SSG	Senior Steering Group
SWARF	Senior Warfighter Forum

T

TEMP	Test and Evaluation Master Plan

U

UAV	unmanned aerial vehicle
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology and Logistics
USIGS	United States Imagery and Geospatial Information Service
USJFCOM	United States Joint Forces Command
USSOCOM	United States Special Operations Command

PART II--DEFINITIONS

Acquisition Category (ACAT). Categories established to facilitate decentralized decision making and execution, and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures. DOD 5000.2-R, part 1, provides the specific definition for each acquisition category (ACAT I through III).

ACAT I. A major defense acquisition program (MDAP) subject to Defense Acquisition Board oversight and estimated by the USD(AT&L) to require an eventual total expenditure of more than $365 million in RDT&E funds, or $2.190 billion in procurement funds measured in FY2000 constant dollars.

ACAT ID. A major defense acquisition program (MDAP) for which the MDA is USD(AT&L). The "D" refers to the Defense Acquisition Broad (DAB), which advises the USD(AT&L) at major decision points.

ACAT IC. A major defense acquisition program subject for which the MDA is the DOD Component Head, or if delegated, the DOD Component Acquisition Executive (CAE). The "C" refers to Component.

ACAT IA. A major automated information system (MAIS) acquisition program that is estimated to require program costs in any single year in excess of $32 million, total program costs in excess of $126 million, or total life cycle costs in excess of $378 million (FY 2000 constant dollars).

ACAT IAM. A major automated information system (MAIS) acquisition program for which the MDA is the Chief Information Officer (CIO) of the Department of Defense (DOD), the ASD(C3I).

ACAT IAC. A major automated information system acquisition program for which the DOD CIO has delegated milestone decision authority to the CAE or Component CIO. The "C" (in ACAT IAC) refers to Component.

Acquisition Program Baseline (APB). Each baseline is developed and updated by the program manager and will govern the activity in the phase succeeding the milestone for which it was developed. APBs consist of three parts; section A--performance (contains KPPs), section B--schedule, and section C--cost.

Advanced Concept Technology Demonstration (ACTD). The primary goal of an ACTD is to assess the military utility of a significant new capability

and to conduct the assessment as a scale size adequate to clearly establish operational utility and system integrity.

Approval. The formal or official sanction of the identified need described in the requirements documentation. Approval also certifies that the documentation has been subject to the uniform process established by DOD 5000 series.

Analysis of Alternatives (AOA). The evaluation of the operational effectiveness and estimated costs of alternative material systems to meet a mission need. The analysis assesses the advantages and disadvantages of alternatives being considered to satisfy requirements, to include the sensitivity of each alternative to possible changes in key assumptions or variables. The AOA assists decision makers in selecting the most cost-effective material alternative to satisfy a mission need.

Architecture. The structure of components, their relationships, and the principles and guidelines governing their design and evolution over time.

Automated Information Systems (AIS). A combination of computer hardware and software, data, telecommunications, that performs functions such as collecting, processing, transmitting, and displaying information. An AIS can include computer hardware only, computer software only, or a combination of the above. Excluded are computer resources, both hardware and software, that are physically part of, dedicated to, or essential in real time to the mission performance of weapon systems.

C4I Support Plans. The purpose of the C4ISP is to provide a window into a specific system development program through which can be seen any shortfalls in the C4I required for each phase of the system's life cycle.

Certification. Statement of adequacy provided by a responsible agency for a specific area of concern in support of the validation process.

Capstone Requirements Document (CRD). A document that contains capabilities-based requirements that facilitates the development of individual ORDs by providing a common framework and operational concept to guide their development. It is an oversight tool for overarching requirements for a system-of-systems or family-of-systems.
Core Capability. The core capability includes the following: 1. The set of functions that define a significant, stand-alone, operationally effective,

and suitable military capability such that, should no further development occur, the user will have received a significant capability. 2. The integral characteristics of the system that, if altered in subsequent increments, would lead to significant redesign of the evolutionary system.

DOD Component. OSD, the Military Departments, the Chairman of the Joint Chiefs of Staff (Joint Staff), the unified and specified commands (including US Element, NORAD), Defense agencies, and DOD field activities.

DOD 5000 Series. Refers collectively to DODD 5000.1, DODI 5000.2 and DOD 5000.2-R.

Electromagnetic Environmental Effects (E3). E3 is the impact of the electromagnetic environment upon the operational capability of militaryforces, equipment, systems, and platforms. It encompasses all electromagnetic disciplines, including electromagnetic compatibility/electromagnetic interference; electromagnetic vulnerability, electromagnetic pulse; electromagnetic protection; hazardsof electromagnetic radiation to personnel, ordnance, andvolatile materials; and natural phenomena effects, of lightning and p-static.

Evolutionary Acquisition. Evolutionary acquisition is a streamlined acquisition strategy that fields a core capability, with a modular open structure and provides for additional future increments in capability upgrades.

Family-of-Systems. A set or arrangement of independent systems that can be arranged or interconnected in various ways to provide different capabilities. The mix of systems can be tailored to provide desired capabilities dependent on the situation.

Information Assurance (IA). IO that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation.

Information Exchange Requirements. The requirement for information to be passed between and among forces, organizations, or administrative structures concerning ongoing activities. Information exchange requirements identify who exchanges what information with whom, as well as why the information is necessary and how that information will be used. For CRDs, top-level IERs are defined as those information exchanges that are between systems that make up the FoS or SoS, as well

as those that are external to the FoS or SoS (i.e., with other C/S/A, allied, and coalition systems). For ORDs, top-level IERS are defined as those information exchanges that are external to the system (i.e., with other C/S/A, allied and coalition systems). The quality (i.e. frequency, timeliness, security) and quantity (i.e., volume, speed, and type of information such as data, voice, and video) are attributes of the information exchange included in the information exchange requirement.

Information Technology System (ITS). Any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. Information technology includes computers, ancillary equipment, software, firmware, and similar procedures, services (including support services), and related resources. Information technology does not include any equipment that is acquired by a Federal contractor incidental to a Federal contract.

Interoperability. (1) The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to make use the services, units, or forces and to use the services so exchanged to enable them to operate effectively together. (2) The condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases. For the purposes of this instruction, the degree of interoperability will be determined by the accomplishment of the proposed IER fields.

Implementation. The publication of directives, instructions, regulations, and related documents that define responsibilities and authorities and establish the internal management processes necessary to implement the policies or procedures of a higher authority.

Insensitive Munitions. Insensitive munitions minimize the probability of inadvertent initiation and the severity of subsequent collateral damage as a result of unplanned, external stimuli.

Joint Experimentation. An iterative process for developing and assessing concept-based hypotheses to identify and recommend the best value-added solutions for changes in doctrine, organizational training and education, materiel, leadership, and personnel required to achieve significant advances in future joint operational capabilities.

Joint Potential Designator (JPD). Used to describe the expected level of joint DOD component involvement.

a. Independent. No potential for other Service use or systems interface or for joint development or procurement.

b. Joint Interest. Joint program management is inappropriate, but a potential for other Service use or systems interface exists.

c. Joint. A potential for joint program management, joint funding, and/or joint development or procurement exists.

Joint Requirements Oversight Council Memorandum (JROCM). Official JROC correspondence generally directed to an audience(s) external to the JROC. Usually decisional in nature.

Joint Requirements Oversight Council Staff Memorandum (JROCSM). Official JROC correspondence generally utilized for internal staffing and tasking. Usually pre-decisional in nature and not releasable outside of JROC circles.

Joint Technical Architecture. The JTA provides DOD systems with the basis for the needed seamless interoperability. The JTA defines the service areas, interfaces, and standards (JTA elements) applicable to all DOD systems, and its adoption is mandated for the management, development, and acquisition of new or improved systems throughout DOD. The JTA is structured into service areas based on the DOD Technical Reference Model (TRM). The DOD TRM originated from the Technical Architecture Framework for Information Management (TAFIM), and was developed to show which interfaces and content needed to be identified. The JTA consists of two main parts: the JTA core, and the JTA Annexes. The JTA core contains the minimum set of JTA elements applicable to all DOD systems to support interoperability.

JROC Special Interest. Programs identified by the JROC Secretary as being of interest to the JROC for oversight even though they do not meet the ACAT I cost thresholds or have been designated as ACAT ID.

Key Performance Parameters (KPPs). Those capabilities or characteristics considered most essential for successful mission accomplishment. Failure to meet an ORD KPP threshold can be cause for the concept or system selection to be reevaluated or the program to be reassessed or terminated. Failure to meet a CRD KPP threshold can be cause for the

family-of-systems or system-of-systems concept to be reassessed or the contributions of the individual systems to be reassessed. KPPs are validated by the JROC. ORD KPPs are included in the APB.

Lead DOD Component. The Service or agency that has been formally designated as lead for a joint program by the MDA. The lead component is responsible for all common documentation, periodic reporting, and funding actions.

Major Automated Information System (MAIS) Program. An automated information system acquisition program that is estimated to require program costs in any single year in excess of $32 million, total program costs in excess of $126 million, or total life cycle costs in excess of $378 million (FY 2000 constant dollars).

Major Defense Acquisition Program (MDAP). An acquisition program that is not a highly sensitive classified program and is estimated by the USD(AT&L) to require an eventual total expenditure of more than $365 million in RDT&E funds, $2.190 billion in procurement funds measured in FY 2000 constant dollars, or programs designated as an MDAP by the USD(AT&L).

Materiel Solution. A defense acquisition program (non-developmental, modification of existing systems, or new program) that satisfies identified mission needs.

Milestones. Major decision points that separate the phases of an acquisition program.

Milestone Decision Authority. The individual designated in accordance with criteria established by the USD(AT&L), or by the ASD(C3I) for AIS acquisition programs, to approve entry of an acquisition program into the next phase.

Military Department. Headed by a civilian Secretary appointed by the President and includes a Military Service (the Department of the Navy includes two Services).

Military Service. Headed by a uniformed member who reports to the civilian Secretary heading the Military Department of which the Service is a part.

Mission Area Analysis (MAA). An analysis that uses a "strategy-to task" (e.g., National Military Strategy to individual mission tasks) methodology to identify the operational support tasks needed to achieve military objectives.

Mission Need. A deficiency in current capabilities or an opportunity to provide new capabilities (or enhance existing capabilities) through the use of new technologies. They are expressed in broad operational terms by the DOD components.

Mission Needs Analysis (MNA). An analysis designed to assess ones ability to accomplish the tasks identified during the MAA. The Analysis uses a task-to-need methodology to identify mission needs. It can also highlight technological opportunities and identify reliability and maintainability improvements that enhance warfighting capability.

Mission Need Statement (MNS). A formatted non-system-specific statement containing operational capability needs and written in broad operational terms. It describes required operational capabilities and constraints to be studied during the Concept Exploration and Definition Phase.

National Security Systems (NSS). Telecommunications and information systems operated by the Department of Defense -- the functions, operation, or use of which (1) involves intelligence activities; (2) involves cryptologic activities related to national security; (3) involves the command and control of military forces; (4) involves equipment that is an integral part of a weapon or weapons systems; or (5) is critical to the direct fulfillment of military or intelligence missions. Subsection (5) in the preceding sentence does not include procurement of automatic data processing equipment or services to be used for routine administrative and business applications (including payroll, finance, logistics, and personnel management applications).

Non-major Defense Acquisition Program. Does not meet criteria for a MDAP. Further defined as ACAT II or III in DOD 5000.2-R, part 1.

Non-materiel Solution. Changes in doctrine, tactics, training, or organization to satisfy identified mission needs. MNSs with an identified non-materiel solution are sent to the Military Departments for consideration and action.

Objective. An operationally significant increment above the threshold. An objective value may be the same as the threshold when an

operationally significant increment above the threshold is not significant or useful.

Operational Architecture View. A description (often graphical) of the tasks and activities, operational elements, and information flows required to accomplish or support a warfighting function.

Operational Requirements. A system capability or characteristic required to accomplish approved mission needs. Operational (including supportability) requirements are typically performance parameters, but they may also be derived from cost and schedule. For each parameter, an objective and threshold value must also be established.

Operational Requirements Document (ORD). A formatted statement containing performance and related operational parameters for the proposed concept or system. Prepared by the user or user's representative at each milestone beginning with Milestone B (or milestone I/program initiation).

Operational Validation Authority. Designated authority responsible for confirming the user's identified need and operational requirement. Designation of this operational validation authority is the responsibility of the MDA and will vary between DOD components and the ACAT level of the program.

Operator. An operational command or agency that employs the acquired system for the benefit of users. Operators may also be users.

Originator. A DOD component or operational command that initiates a MNS. The originator may or may not be the sponsor.

Principal Staff Assistant (PSA). Represents the user community in the functional area under their direction on acquisition and requirements matters. The OSD PSAs are the Under Secretaries of Defense (USDs), the Director of Defense Research and Engineering (DDR&E), the Assistant Secretaries of Defense (ASDs), the Director, Operational Test and Evaluation (DOT&E), the General Counsel of the Department of Defense (GC, DOD), the Inspector General of the Department of Defense (IG, DOD), the Assistants to the Secretary of Defense (ATSDs), and the OSD Directors or equivalents, who report directly to the Secretary or the Deputy Secretary of Defense.

Requirement. The need of an operational user, initially expressed in broad operational capability terms in the format of a MNS. It

progressively evolves to system-specific performance requirements in the ORD.

Sponsor. The DOD component responsible for all common documentation, periodic reporting, and funding actions required to support the requirements and acquisition process.

Supplementation. The publication of directives, instructions, regulations, and related documents that add to, restrict, or otherwise modify the policies or procedures of a higher authority.

System Capabilities. Measures of performance such as range, lethality, maneuverability, and survivability.

System Characteristics. Design features such as weight, fuel capacity, and size. Characteristics are usually traceable to capabilities (e.g., hardening characteristics are derived from a survival capability) and are frequently dictated by operational constraints (e.g., carrier compatibility) and/or the intended operational environment (e.g., NBC).

System-of-Systems. A set or arrangement of systems that are related or connected to provide a given capability. The loss of any part of the system will degrade the performance or capabilities of the whole.

System Architecture View. A description, including graphics, of systems and interconnections providing for or supporting warfighting functions.

Senior Warfighter Forum. JROC directed forum used to organize, analyze, prioritize, and frame complex warfighter resource and requirements issues for JROC approval. JROC tasking memorandum will identify the scope, sponsor and supporting agencies to frame issues.

Technical Architecture View. A minimal set of rules governing the arrangement, interaction, and interdependence of system parts or elements, whose purpose is to ensure that a conformant system satisfies a specified set of requirements.

Threshold. A minimum acceptable operational value below which the utility of the system becomes questionable.

User. An operational command or agency that receives or will receive benefit from the acquired system. CINCs and their Service component commands are the users. There may be more than one user for a system. The Service component commands are seen as users for

systems required to organize, equip, and train forces for the CINCs. The Chiefs of the Services and heads of other DOD components are validation and approval authorities and are not viewed as users.

User Representative. A command or agency that has been formally designated by proper authority to represent single or multiple users in the requirements and acquisition process. The Services and the Service components of the CINCs are normally the user representatives. There should only be one user representative for a system.

Validation. The review of documentation by an operational authority other than the user to confirm the need or operational requirement. As a minimum, the operational validation authority reviews the MNS, confirms that a nonmateriel solution is not feasible, assesses the joint Service potential, and forwards a recommendation to the MDA for Milestone A (or milestone 0) action. Validation is a necessary, but not sufficient, step for approval. This step appears identical to approval in the case of a MNS, but the JROC may delegate final ORD approval authority while retaining validation authority.

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